North Coast Watershed Assessment Program: Responses to Public Comments

INTRODUCTION

On April 19, 2001, the NCWAP released the North Coast Watershed Assessment Program Draft Methods manual describing the objectives, development and proposed methods of the North Coast Watershed Assessment Program (NCWAP). After its release, the NCWAP management team, consisting of representatives from the Resources Agency, the Departments of Fish and Game (DFG), Forestry and Fire Protection (CDF), Water Resources (DWR) and Conservation's Division of Mines and Geology (DOC/DMG), and the North Coast Water Quality Control Board (NCWQCB) met with stakeholder groups and members of the public to solicit input and questions about the proposed program methods. The University of California's Center for Forestry and Cooperative Extension assisted in facilitating four public meetings and took notes on comments and questions. The program also solicited written comments during a formal comment period. The University then prepared a summary of all comments and questions from meetings, letters, and email, organizing them into "process" and "technical" categories which in turn are broken down into additional subtopics.

This document includes responses to those questions and comments that relate to the program's objectives, methods, and implementation. The questions and responses are mostly arranged according to the categories and subtopics in the UC summary, however since similar questions were listed under different categories, we have combined some questions in order to provide more comprehensive responses and minimize redundancy, and have also added several subtopics to make questions easier to find. Where the UC summary lacked adequate context, we have restated the question to reflect what we believe was its intent. We have also added questions and comments we received from Redwood National and State Parks, the federal Environmental Protection Agency, and the Bureau of Land Management which were not included in the UC summary.

In general, we found the comments and questions very helpful in refining our program. The management team has gone over all of them in order to see where we could expand or refocus our efforts to address specific needs or concerns, where we needed to clarify the limitations of NCWAP, and how we might improve it in the future. In response to several suggestions about the need to test the full methodology, we think this makes a lot of sense and have decided to defer revision of the draft manual until we have completed the draft assessments for the first three basins. We will evaluate those assessment products and processes in order to finalize our methodology.

Our special thanks to Dr. Richard Standiford, Dr. Richard Harris, Greg Giusti, Gary Nakamura, and Yana Valachovic from the UC system for assisting us in the public outreach, and to the public for their efforts in reviewing and providing feedback to our program.

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SECTION I. QUESTIONS ABOUT THE NCWAP PROCESS

Philosophy, Scope, and Use of the North Coast Watershed Assessment Program

1. Will NCWAP establish desired condition, and will it use the same criteria for each assessment?

Watershed assessment is one step in a five part approach to watershed restoration and protection. Assessment activities should characterize conditions and watershed protection needs in order to support planning , project design and implementation, monitoring and adaptive management, and outreach and education. Since NCWAP is an assessment program, it will *not* establish thresholds or desired conditions for watersheds, nor targets for fish populations, however it *will* identify ranges of values for watershed and stream conditions that are known to be suitable for salmonid growth based on the scientific literature, reference sites, or expert opinion. These ranges, or value curves, will be used in a watershed model (Ecosystem Management Decision Support or EMDS) to assess how current conditions interact or add up to affect overall watershed suitability for salmon habitat. The model is flexible and can be adapted to incorporate values identified by local experts and stakeholders from reference watershed sites within the basin.

2. What is the difference between "assessment" and "analysis"? Aren't NCWAP activities very similar to Washington state's "analysis" program?

In reviewing the explanation of "analysis" and "assessment" as used in the first draft of the NCWAP manual, we agree with some reviewers that the distinction between "assessment" and "analysis" may be largely semantic. NCWAP will assess current conditions, using qualitative and quantitative information from various sources and will use a linguistic watershed model, rather than a statistical one, to identify factors currently limiting salmonid habitat suitability. It will develop hypotheses about the relationships among past and current watershed conditions, processes, and land uses, and about which current factors might contribute to future cumulative effects. We will *not* however conduct cumulative effects and risk analyses of different land use scenarios and stochastic natural events (e.g. storms, fires, etc) as recommended by some experts. We will also not use the information to develop watershed-based regulations as was the intent of the Washington Watershed *Analysis* Program.

3. What is the role of NCWAP science in explaining causation? Could NCWAP take an adaptive management approach coupled with monitoring to better explain causation?

In order to explain watershed-level causality, we would have to establish hypothesis driven, long-term research studies or monitoring programs of a complexity and scope that are virtually impossible and for which NCWAP has neither the resources nor the legislative direction. Therefore since we cannot explain causation with

statistical confidence, we agree that NCWAP products should support an adaptive assessment and management approach. We will develop hypotheses that could be tested with further data collection, and recommend monitoring actions needed to fill data gaps, improve the EMDS model and evaluate the effectiveness of recommended management and restoration practices.

4. Is NCWAP narrowly focused on a few fish species (i.e. single species management) to the exclusion of other wildlife and human interests?

NCWAP was precipitated in large part by concerns about salmonid listings, TMDL development, and the Scientific Review Panel recommendations related to Forest Practices protection of salmonids. While NCWAP believes that habitat assessment for salmon, as a keystone species, will reflect watershed health for most other native aquatic species on the North Coast, our work does not supplant the need for additional assessment activities to protect water quality for all beneficial uses, other endangered species, water supply for economic uses, flood control, sustainable forestry or other watershed concerns. NCWAP will, however, supply a significant amount of information to support those efforts.

5. Even though NCWAP may capture only a snapshot in time, it may be taken as the final word on watershed condition.

NCWAP provides a first step in explaining watershed influences on salmon habitat, not the last word. Its objective is to describe current watershed and stream conditions for salmonid habitat, and to provide a comprehensive framework for exploring relationships among those factors. NCWAP assessments will employ measures to ensure accuracy, spell out assumptions, clarify limitations of analysis, and provide for public and peer review (see Data Accuracy and Public Input sections). More important, NCWAP will support an adaptive assessment and management approach by developing hypotheses about linkages among factors and by identifying data. NCWAP will help local stakeholders find ways to establish follow-up data collection and monitoring where possible.

6. How will land uses besides timber be incorporated into the program?

CDF will use multiple information sources to identify land use, including rangeland, farmland, residential developments, and urban areas. These sources include aerial photos, Department of Conservation farmland maps, county information resources (e.g., planning and Agriculture Commissioner offices, general plans, assessor parcel maps and zoning classes), Farm Bureau representatives, extension specialists, Natural Resources Conservation Service agents, historical maps, and other resources as identified on a watershed by watershed basis.

7. Can NCWAP conduct a pilot assessment before finalizing our methods?

Several elements of NCWAP were already demonstrated in a pilot on the Noyo River, including landslide mapping and relative landslide potential analysis, development of a bibliographic database, several GIS-based spatial analyses,

development of a KRIS fisheries and watershed information system CD and website, and the identification of limiting factors. Since then, additional elements have been added to our assessment approach, including: use of aerial photos to identify land use history and related vegetation and soil disturbance, the EMDS watershed model for limiting factor analysis which we tested with data from the Mattole watershed, and field data collection methods to support fish habitat, water quality assessment and hydrologic analyses. However, in response to this suggestion we have decided to further test the EMDS model on the Gualala and Mattole Rivers and Redwood Creek by working with outside scientists and local experts before we finalize a methods manual.

8. Who was on the science review team?

Dr. Matt O'Connor (O'Conner Environmental, Inc.); Dr. Mathias Kondolf (UC Berkeley); Dr. Leslie Reid, Dr. Robert Ziemer, and Dr. Thomas Lisle (Redwood Sciences Laboratory); Gerald Weber (consulting Certified Engineering Geologist), and Dr. George Ice (National Council for Air and Stream Improvement) .

9. Can NCWAP incorporate social/economic factors into the watershed assessments?

As indicated in the draft assessment methods manual, NCWAP had intended to develop general social and economic information for each watershed, even though this was not part of our charge from the legislature, because we believe that this information is important to support watershed planning efforts. Unfortunately, thus far the program has not had resources to conduct social and economic assessments. Some of this information need may be met by CDF's Fire and Resource Assessment Program in updating the Forest and Rangeland Resources Assessment. However, this assessment work is conducted at a broader level than watersheds and will not be completed until 2002.

10. Could NCWAP provide a pilot project to assist in developing a management plan including a cumulative effects analysis to tier off assessment?

NCWAP is not funded for this but CDF participants are interested in working with landowners to see how NCWAP findings can best be used for management planning and cumulative effects analyses. Therefore, CDF will entertain proposals and requests for assistance to work with CDF to apply NCWAP products.

11. Some reviewers said that , in light of other large studies, there was no need for more assessment.

NCWAP was established in response to calls from the environmental community, landowners, timber industry, and restoration community to establish a consistent scientific foundation for watershed level decision-making. While some basins have been well studied, as cited by the comments, others have little to no information on many of the parameters that NCWAP is examining. Furthermore, few if any have assessed interactions at the watershed scale in a comprehensive manner. NCWAP

will incorporate information and findings from other assessments where these exist, and then focus its fieldwork to validate or update them as necessary, and fill data gaps (see also Agency Relations and Coordination with Other Assessments).

12. Redwood National and State Park and others asked for more definition about the cumulative effects framework and recommendations, and how will it relate to other approaches being considered by Board of Forestry?

CDF is putting in place a contract with the University of California, Berkeley, for the development of a cumulative effects framework that will guide project proponents and others to assess potential cumulative effects of proposed projects in the context of the planning watershed and larger watershed units. The framework will be designed to be compatible with the level of watershed assessment being conducted by NCWAP. In addition, the Board of Forestry and Fire Protection has just adopted an Interim Watershed Mitigation Addendum (IWMA) rule which will allow landowners in the so-called area of "threatened and impaired watersheds" to use an assessment process to develop an alternative to the practices required under the interim Forest Practice rule for this area. NCWAP products will be very useful to landowners choosing this approach, and landowners will be expected to incorporate and address NCWAP information where assessments have been done.

13. How will NCWAP affect decision making such as the development or implementation of policy, management prescriptions, restoration projects, harvestable fishery goals, and water rights adjudication?

NCWAP is an assessment program, not a policy, regulatory, planning, or management program. NCWAP assessment products will, however, help other entities implement these activities with respect to the protection and enhancement of watershed values. NCWAP will provide and explain assessment findings to fishery grant programs to help them target funding on projects that address limiting factors and can contribute to recovery. We will brief and train staff for landowner assistance and regulatory programs such as Basin Planning, Forestry Assistance, Forest Practices, 1600 program, and TMDL programs so they can improve the conduct and delivery of their programs. NCWAP was also originally provided 2 DFG personnel for direct assistance to landowners interested in designing site-specific restoration projects to address limiting factors found by NCWAP. NCWAP program staff will not recommend regulatory changes nor develop management plans nor prescriptions. Regulatory bodies such as the Board of Forestry, F&G Commission, SWRCB, or even county agencies, may wish to consider NCWAP information in making new policies, rules, or ordinances. However since NCWAP findings are specific to each watershed, they may preclude any one-size-fits-all state application. Finally, NCWAP will provide assessment reports to the Legislature which has expressed interest in limiting factors for salmonids, restoration objectives, and general land management recommendations.

14. How will NCWAP identify refugia in order to support efforts to "protect the best" through conservation easements?

Refugia are places where fish persist in spite of events that have caused their elimination in the rest of the watershed or region. They range in size from a single pool to a whole watershed, and are critical to recolonizing habitats in the future. DFG and other NCWAP participants may detect some refugia in the course of stream reach fieldwork, but are not generally likely to pick up most smaller remnants. EMDS products could be used to identify watersheds where we might expect to find stream reach sized refugia; additional field work could then be focused in those watersheds to increase the chance of finding them. This information could be examined by landowners and local watershed groups to develop conservation biology-based stewardship strategies to restore and connect habitats, using restoration, acquisition, easements and other measures. Please refer to Fish Data section for more detail.

15. NMFS asked how NCWAP will be institutionalized, i.e. how NCWAP products and information, such as Limiting Factors findings, will be used in daily operations across agencies and programs.

Based on our pilot efforts in the Gualala, we have been able to train both local watershed group members and agency staff in the use of KRIS and to get them to agree to put new data into KRIS. In addition, NCWAP will provide results, briefings and training to other programs (e.g. Forest Practices, TMDL, Basin Planning, Forestry Assistance, 1600 Program) to ensure that the results and tools are used in management, landowner assistance, and regulatory activities. We will also explore options with DFG's basin planners, CDF Forest Practices staff, and the Water Board for incorporating their data into these tools on an ongoing basis.

16. Some reviewers expressed concern about the potential misuse of NCWAP findings.

NCWAP will take several steps to prevent the misuse of data and analyses. Quality Assurance/Quality Control protocols will be used for existing and new data (described in first draft of manual), and the assessment report will spell out the strengths and limitations of the data and analyses, and recommend follow-up monitoring or data collection needs. NCWAP will also provide a period for public and peer review, revisions, and documentation of comments. These issues are discussed in greater detail under Data Accuracy and Storage, The Role of Private Landowners, and Public Input and Information Access.

17. Will restoration funding for watersheds that are not assessed early in the NCWAP schedule be adversely impacted?

No. NCWAP information will help guide restoration efforts and funding for those watersheds we have assessed. It should not affect funding availability for other watersheds where project proponents can demonstrate restoration needs.

18. Redwood National and State Parks asked who would collect data, emphasizing the need for appropriate credentials.

Field data will be collected by field teams consisting of licensed engineering geologists, DFG fisheries biologists and technicians trained and supervised by them, land and water use analysts and environmental scientists, and water engineers. Remote sensing data will be interpreted with some field verification by team members who are experienced licensed foresters and also by GIS specialists. The lead staff for each discipline on the teams, along with a watershed scientist from CDF, will be involved in the overall assessment.

19. How will NCWAP be updated? Will NCWAP staff reassess these watersheds and rerun the watershed model? How will information be transferred to keep stakeholders current, and will NCWAP accept information developed by others?

NCWAP participants are committed to making sure that this is not a one-time assessment. NCWAP is permanently funded, so that we are prepared to reassess watersheds, focusing on limiting factors, after we have cycled once through the basins. However, we believe that more immediate continuity and local follow-up is critical to NCWAP's watershed protection and restoration goals. Therefore, NCWAP will provide recommendations and training where possible for local entities to establish and conduct monitoring, incorporate new data into NCWAP databases, use the KRIS tools, and rerun the watershed EMDS model themselves as more information becomes available. We will look for interested public or NGO entities that can help the watershed community improve and continue the assessments.

Assessment time frame, schedule, and selection of watersheds

1. A number of reviewers questioned the feasibility of finishing these assessments in the proposed time frame while ensuring adequate time for field work, analysis, and interdisciplinary synthesis.

NCWAP was designed and funded to assess from 900 thousand to one million watershed acres per year using preexisting data, remotely sensed data, and focused field data collection. We will not be able to accomplish this the first year due to shortages of eligible qualified people for new positions and to additional time requirements for peer review processes and development of the watershed model (Ecosystem Management Decision Support or EMDS) . The Legislature expects assessment reports for the Gualala, Redwood and Mattole watersheds by 2/1/02 and for the Albion and Big Rivers by 4/1/02. Given time constraints and differences in the availability of preexisting data among basins, some assessments will be more comprehensive and have stronger findings than others. In all cases, it is important to understand that NCWAP provides a starting point for consistent watershed level assessment by assessing current conditions and by laying a framework for exploring linkages among watershed factors, monitoring, more focused assessment and adaptive management.

2. **NMFS suggested that we consider building in annual reviews of how the assessment process is working and updating methods as needed.**

   This is an excellent suggestion which we will try to do in conjunction with NMFS and other interested agencies.

3. **Some reviewers said that the State could not afford to wait for assessment while water quality, watershed conditions, and fish populations continue to decline.**

   NCWAP is part of an eight point program initiated by the Resources Agency to restore watersheds and salmon which also includes improved state enforcement, partnerships with counties to improve their practices, and assistance to landowners and others to improve management. Progress continues on all these fronts. Staffing for Forest Practices implementation and review was increased by 71 persons in 1999-2000, and the Board of Forestry is continuing with Forest Practices rulemaking and related policy discussions during NCWAP implementation. The North Coast Water Quality Control Board and EPA continue to develop TMDLs under consent decrees, and NMFS is convening teams to develop recovery plans. Funding for restoration has increased. DFG has received additional grant funds from the federal government and Proposition 13. Landowners, local agencies, watershed groups and restoration consultants are using grants and private funds to identify and solve problems in their watersheds. NCWAP will improve those processes by identifying limiting watershed and stream factors for salmonids for use in regulatory and management activities, by prioritizing restoration needs, and by identifying conditions that affect the potential success of restoration projects.

4. **How will NCWAP choose which watersheds to assess first? One reviewer suggested assessing well studied basins and focusing on well documented species, while another suggested picking those watersheds where we could get out ahead of TMDLs.**

   NCWAP watersheds assessments will be scheduled to contribute where possible to TMDL development and to address the most pressing fisheries recovery needs. Where resources are limiting, we will balance these objectives. We will rely on the North Coast Water Quality Control Board to keep us informed of TMDL implementation and on DFG in consultation with NMFS to identify priorities for fisheries. Unfortunately we are unable to provide input to several TMDLs in year one as planned due to difficulties in hiring and to additional time requirements for review processes requested by the public and Legislature. Our approach has resulted in first year assessments of basins that have relatively little information (the Gualala River) as well as one with lots of data (e.g. Redwood Creek).

5. **EPA asked that NCWAP products be available no later than March of the year TMDLs are due in order to incorporate assessment information.**

   While we originally scheduled the Big, Albion and Gualala assessments to be able to provide input to the TMDLs, unfortunately program delays due to staffing, EMDS

model development, and review processes have precluded that. We will work closely with EPA and the Board to provide information as possible for future TMDLs. However, since the program's intent was to meet both fishery recovery efforts and TMDLs needs, balancing those will mean that we will not meet all TMDL scheduling needs.

6. **What is your updated schedule?**

   The NCWAP schedule for basin assessments in years two and three is as follows: Middle Klamath, Middle Fork Eel and some field work on the Scott and Shasta in 2002, and Upper Main Eel, Scott River, Shasta River, and at least one other watershed in 2003.

Agency Relations and Coordination with Other Assessments

1. **How will NCWAP coordinate with federal agencies, including NMFS, the US Forest Service, Bureau of Land Management , and Bureau of Indian Affairs, and how will NCWAP products be received? EPA also suggested contacting the Army Corps of Engineers and the Bureau of Reclamation.**

   NCWAP has worked with NMFS on the development of our methods, including the water model (Ecosystem Management Decision Support or EMDS) for identifying limiting factors. NMFS provided several rounds of comments which we have used to revise and refocus our methods. We are also coordinating our assessment schedule with EPA to the extent possible to support TMDL development. We will work with federal landowners (USFS and BLM) to share information and coordinate data collection and analyses where possible on individual watersheds. For example, we are working with Redwood National and State Parks to enhance existing assessment and monitoring efforts and will use and analyze their data at their request. We will take additional steps to improve our coordination with recovery teams established by NMFS, the USFS Region 5 Ecosystem Management staff, and other assessment activities of the Northwest Forest Plan. We have not contacted the Bureau of Indian Affairs, but have been in contact with a GIS coordinator from the Hoopa Valley Tribal Council Fisheries Dept. who is interested in sharing information on Trinity River watersheds. By working with the federal landowner agencies, we can benefit from their assessment efforts and provide a more comprehensive view of the whole watershed. By working upfront with the regulatory agencies, we have been able to improve our methods so that we can expect our products to be used in their planning efforts.

2. **How will NCWAP coordinate with and incorporate other assessment and planning documents, such as studies generated through the Klamath and Trinity Restoration Acts and the Scott River Management Plan?**

   NCWAP has provided staff resources specifically to locate and review existing studies and data sources. Furthermore NCWAP's scoping meetings will provide opportunity for the public to identify and discuss any information they think relevant

to our assessments. NCWAP will summarize these sources in a data catalogue, evaluate them for use in our assessment, verify or update data with field work if needed and if landowners provide access, use this information in our watershed EMDS model and focus our data collection on gaps in those studies.

3. **How NCWAP will coordinate with Total Maximum Daily Loads (TMDLs) and Basin Plans?**

   The NCWAP assessment schedule is designed in part to provide assessments to Water Board and US EPA TMDL staff to assist them in the development of TMDLs. EPA has let us know which NCWAP products they are most interested in and when they need them relative to the TMDL consent decree. In those watersheds where NCWAP assessments precede TMDL development, they will provide valuable information for TMDLs to build on. Assessment data will be compared to Basin Plan water quality objectives and TMDL instream targets to help determine the extent to which those objectives and targets are being attained. That information may be used in subsequent listings or delistings of the waterbody at some future date. Within the Water Board office, the Basin Planning staff, TMDL staff and NCWAP staff are within the same division and in routine contact with one another. In the water quality control process, there is a cycle of TMDL development, Basin Plan adoption of TMDLs and implementation plans, and monitoring to assess attainment of targets and objectives. The monitoring and assessment also feeds the TMDL development process and is useful in the development of implementation plans. Those linkages are well-recognized by staff and coordination among the staff is fostered.

4. **How will NCWAP coordinate with county road assessments?**

   The Resources Agency, through CDF and DFG, has provided funding to the 5 Northern County Salmon Conservation effort (participants are Mendocino, Humboldt, Del Norte, Trinity, and Siskiyou Counties), which is systematically inventorying county roads and culvert conditions as they relate to salmonid habitat protection. They have expressed interest in sharing their data and databases with NCWAP which should be available in the very near future. Their information on fish barriers and roads can most likely be used in our watershed model, as well as in predictive surface erosion models such as SEDMOD for road related erosion.

5. **Is the California Biodiversity Council involved with NCWAP?**

   CDF made a NCWAP presentation to the CBC last year. The CBC established a Watershed Working Group (WWG) which is charged to facilitate watershed restoration and conservation through coordination of statewide projects and policies, including assessment, watershed planning, funding and project permitting. Several NCWAP lead staff are involved with this effort and will ensure that our products are part of these efforts.

6. **How will NCWAP affect Habitat Conservation Plans (HCPs) and how could HCPs contribute to NCWAP?**

HCPs are plans developed under the federal Endangered Species Act to allow incidental take of a threatened or endangered species under a management plan that enhances habitat overall and provides a net benefit to the species. To the extent that watershed conditions and function are important to that species, we would expect this information to be considered and incorporated. NCWAP, however, specifically considers habitat suitability only for anadromous salmonid species. NCWAP will also review HCPs to the extent that they are available, and will incorporate information that is relevant to our assessment questions and methodology.

7. Several reviewers commented on the need for agriculture and range management expertise for assessing watershed conditions.

NCWAP will work with county Agricultural Commissioners and Farm Bureau Representatives to verify farmland uses, as needed, and work with UC Extension specialists and RCDs where possible on model assumptions and recommendations related to rangeland and farmland management and habitat conditions.

8. Can we expect CDF to use NCWAP results in evaluating THPs in sediment impaired watersheds?

Yes. CDF and the other review team agencies will use NCWAP results in reviewing timber harvesting plans. CDF expects THP proponents to use NCWAP information in preparing plans. CDF staff also will work with a similar group of parties to ensure that the results of NCWAP's work are disseminated and put to use.

9. What is the relationship between NCWAP and DFG's Basin Planning programs and Monitoring Protocols project?

NCWAP is already coordinating with both these projects. We will use DFG Basin Planning data where it exists, and work with Basin Planners to review information developed by NCWAP and to teach them how to use it. In the Gualala River watershed, we were able to enhance both NCWAP and Basin Planning efforts by coordinating data collection. With respect to monitoring protocols, the project manager has assisted NCWAP in developing our methods, and is developing his restoration effectiveness monitoring methods to be as compatible as possible with NCWAP's watershed level assessment in order to support post-NCWAP monitoring efforts. Through this coordination, we will make fish habitat assessment methodology as consistent as possible across programs.

10. Is NCWAP using uniform protocols across departments?

Field data will be collected using a commonly agreed upon set of protocols. For instance, while temperature may be collected by either DFG or the Water Board, it will be done using temperature data loggers developed under the Forest Science Project. Department staff will also collect data in the most opportunistic manner to enhance each others' efforts, stakeholder efforts, and the overall assessment. For

example, the Water Board is coordinating data collection for channel parameters with Fish and Game in the Albion, adding detailed cross-section and thalweg profiles, water quality data, and pebble counts to the lower sections of streams being habitat typed by Fish and Game. Those data in some cases also will supplement the database compiled by Mendocino Redwoods Company in past years, using the same methods. Likewise, we encourage local groups and landowners to use the same protocols. For instance, in the Gualala watershed, the Gualala River Watershed Council has protocols that match those used by the Water Board and Fish and Game. Data collection efforts by the Council and cooperators, such as Gualala Redwoods, Inc., follow those protocols.

Watershed Group Relationships

1. **How will NCWAP support the establishment, participation, and success of watershed groups, and should those already working in watersheds wait for NCWAP to check in with them?**

   NCWAP wants to support and foster local efforts to assess, plan, and restore watersheds. We don't want to slow down local efforts and believe that our job will be aided by groups who have already begun to identify issues and assess conditions. So, we will scope out local concerns with existing groups and members of the public, as described in the manual, to identify and discuss how our assessment might contribute to addressing them, and also to identify information sources and local data sources. This can help "institutionalize" existing efforts and galvanize locals where watershed groups don't exist. We will also develop recommendations for restoration, monitoring and adaptive management that could help focus individuals or groups just beginning to form. We will also provide two DFG staff to work with interested locals in developing restoration projects or strategies. We will also train local stakeholders to use information and tools such as KRIS and our watershed Ecosystem Management Decision Support (EMDS) model.

2. **Some reviewers expressed concerns about privacy and others expressed concern that NCWAP might scare away citizens from cooperation.**

   NCWAP appreciates the privacy concerns of landowners. NCWAP will collect field data only where they are granted access and permission to do so. When this issue came up in the Gualala River watershed, we agreed to specific measures to address these concerns and are willing to take the same or similar steps in other watersheds. These included working with the local watershed to communicate our needs to individual landowners and to learn about their interests and concerns; to coordinate access requests, providing written requests and descriptions of our work and intended use as desired; to use locals as feasible to conduct data collection where landowners are willing; and to coordinate agency field visits where possible.

3. **Will NCWAP work with schools to collect data, establish monitoring, and define management prescriptions?**

Since NCWAP is assessing privately owned lands, we will not develop management prescriptions, nor would we ask schools or others to develop plans for private land. If schools have collected watershed and stream condition data with landowner permission, NCWAP will consider those for use in NCWAP. NCWAP would also consider working with schools to collect new data where landowners are willing if time constraints permit. If programs do not already exist, however, it would be impossible to set up such a program in the one year allocated for a basin's assessment though we might be able to assist schools in establishing a follow up monitoring program.

4. **Reviewers requested names of NCWAP participants that communities or groups can contact before NCWAP begins an assessment on their watershed.**

While we have not assigned team leads for future individual watershed assessments, you may call any of the agency leads in the program's management team: Scott Downie, DFG, at 707-725-1070; Russ Henly, CDF, at 916-227-2659; Steve Sterling, DOC/DMG, at 916-322-2588; Bob Klamt, NCWQCB at 707-526-2693; and John Clements, DWR, at 530-529-7323.

The Role of Private Landowners

1. **Some reviewers felt that landowners have a higher stake in the assessment by virtue of owning and managing watershed lands, and should therefore have greater input than other "stakeholders".**

   All citizens have a stake in the protection of public trust resources such as water and wildlife and, therefore, in understanding how watershed processes, land use, and resource conditions are affecting them . However, since NCWAP will focus its assessment on private and state lands, landowners can have a strong influence on the assessment if they choose by providing information about their watershed lands. To the extent that landowners participate in public scoping, provide data or even assist with data collection, and help review and critique NCWAP products, their opinions are also likely to carry significant weight with other citizens and stakeholders in the watershed.

2. **Landowners expressed concern about potential misuse or misinterpretation of data and asked whether NCWAP could guarantee that information provided by local communities and landowners would not be used against them.**

   While NCWAP cannot make guarantees about how others will use its products, it has established measures to minimize the development of inaccurate data or the use of inappropriate information, including quality control protocols, a data catalogue describing all sources considered, and the opportunity to review and comment on data and assessment findings. It also seeks out landowner information to improve the assessment. Finally, it uses a very transparent watershed model with which you can easily track the decision process and identify underlying assumptions, and which can be adapted for local conditions. These are described in greater detail in Data Accuracy and Storage .

   In response to concerns about impacts from cooperating with agency personnel, NCWAP will not prescribe specific management practices or plans for individual ownerships or for watersheds, nor will we recommend regulatory actions. Moreover, NCWAP staff want to take proactive approaches with landowners to reduce the likelihood of regulatory action. DFG and NCWQCB will therefore work with landowners who identify watershed problems upfront to fix them, avoiding regulatory actions where even possible, and giving "credit" for these measures in TMDL implementation plans.

   Beyond these measures, NCWAP provides landowners a proactive opportunity to help focus regulatory and planning efforts already in process, such as TMDLs and Recovery Plans, on the right watersheds and factors. This includes pointing out watersheds that are functioning well and support good condition habitat, and improving our understanding of local watershed dynamics and limiting factors. To the extent that NCWAP assessments can then identify limiting factors at the watershed level, regulatory programs will not need to take more conservative approaches that rely on one-size fits all measures at a basin or regional scale.

3. What data will NCWAP gather on private lands?

NCWAP will compile and collect a number of data related to land use, vegetation, geologic and fluvial geomorphic conditions and processes, stream flow, water quality, and fish habitat. For each basin, data collection priorities will be determined by the amount and quality of existing data from landowners or other studies. While aerial photos and remote imagery can be used for some parameters, on-the-ground (or in the stream) sampling will be needed for water quality, fish habitat, stream flow and some fluvial geomorphology data if information doesn't already exist. This on-the-ground work will require permission from private landowners.

DFG is interested in the following data indicating current habitat conditions for salmonids: stream habitat classification; inventory or survey of pools, riffle and flat water habitats to look at pool depth and frequency and substrate characteristics (e.g. embeddedness and fine sediments); fish presence or absence; and possibly large woody debris and macroinvertebrates (insects) in the future. The Water Quality Control Board is interested in sampling channel, water chemistry, and biologic characteristics, i.e. stream cross sections, streambed profiles, sediment size and distribution, pool sediment, pH, nutrients, dissolved oxygen, heavy metals, and temperature. Division of Mines and Geology will want to sample volumes of sediment to analyze sediment storage. DWR may need private land access to install stream gauges. CDF may need to verify (and in some cases augment) existing vegetation, roads, and land use information. Methods for all these are described in the original draft of the manual and related appendices. We will provide an updated list of data collection plans, based on year one experiences, in the second draft of the manual.

4. What is the likelihood that NCWAP will get cooperation from landowners?

Landowners, including industrial and non-industrial timberland owners, are already cooperating with NCWAP in the Gualala River and Redwood Creek watersheds. They are sharing data with NCWAP, allowing agencies to collect new data, and working with NCWAP to identify additional consultants that they are willing to provide access to for data collection. In Redwood Creek where landowners, including the National/State Park, have collected and provided large amounts of data, we have been able to assess additional conditions in concert with landowners.

5. Could NCWAP aggregate stream reach data to maintain landowner anonymity?

Yes NCWAP will work with landowners to aggregate data if requested to protect proprietary information. This should be feasible for stream reach data in the EMDS watershed model. This would naturally reduce the transparency of the watershed EMDS model and may unfortunately make it more difficult to develop appropriate adaptive management monitoring projects.

6. Will NCWAP use data from cumulative effects analyses furnished through THPs?

Yes, if relevant. THPs are public documents. CDF has already digitized spatial information in THPs from the last decade for use in this project. Other NCWAP team members will review THPs for information, such as water quality and harvest impacts, that is relevant to our assessment in terms of questions, scale, and EMDS watershed model.

7. How can landowners get credit in our assessments for improvements they make?

We agree with this suggestion that NCWAP include information on improvement efforts in progress, particularly ones that may already be addressing limiting factors. NCWAP will explore UC Davis' Natural Resource Project Inventory, DFG's Fishery Grants database, and other sources for comprehensive, spatially referenced information about restoration projects that could be included in NCWAP assessments. This could also be important to post-NCWAP monitoring efforts to test hypotheses.

Data Accuracy and Data Storage

1. How will NCWAP handle variability in the types and quality of pre-existing data and how will we provide for unbiased data collection methods and quality assurance and control?

NCWAP will use the following measures to ensure and document accuracy and appropriate use of data:

- QA/QC protocols for evaluating existing data and for guiding new data collection and spatial data development (described in first manual draft)
- a data catalog to describe the source and quality of all information considered or used for various purposes, based on objective, method, and scope of original data collection,
- A watershed model (Ecosystem Management Decision Support or EMDS) that is very transparent in its assumptions of how factors interact, that clearly shows the strengths and weaknesses of existing information, and that can be adapted and rerun as new information becomes available
- Recommendations for subsequent data collection and monitoring, and
- Public and scientific review opportunities.

2. How will NCWAP ground-truth LANDSAT data to ensure accuracy, and what happens when we determine that remote sensing is inaccurate?

Our main use of satellite-derived information is our GIS vegetation coverage for the North Coast region. The imagery used to develop this coverage has a 30-meter resolution and a 2.5 acre minimum mapping unit. This vegetation coverage was developed largely by the Region 5 of the USDA Forest Service. An accuracy assessment was completed of this work, so we have detailed information about the accuracy of the different kinds of vegetation classifications. Also, CDF has provided significant funding to the Forest Service to update this data and to increase its

accuracy for elements of particular concern to salmonid habitat, such as riparian canopy closure and tree diameter. We expect this improved information to be available early 2002. Since NCWAP generally will not assess or make recommendations at the site-specific level, a small level of inaccuracy in some data sets should not undermine analysis.

3. How will NCWAP proceed if it is determined that the prediction model is inaccurate?

The EMDS watershed model is not a statistical predictive model but a linguistic model that organizes information into a logic framework to explain how we think current processes, conditions and land use interact at a watershed level to affect fish habitat. One of its values is its transparency, so that if it yields results that suggest habitat is bad where we know there are abundant fish, or where it indicates good habitat but there are no fish, we can reexamine the model for inadequate data, missing linkages, and improper assumptions. The importance of single parameters or a given value can also be tested very easily by doing sensitivity analyses. In order to address these issues upfront, we will work with scientists to test and refine the model on the first 3 watersheds. Additional sensitivity analyses and refinements can be done in each basin with local stakeholders as questions arise and more information becomes available.

4. What leeway exists for DMG to amend their data gathering and analysis in response to peer review and professional judgment, vis-a-vis statutorily determined procedures?

DMG will review comments submitted and will modify maps if warranted. As required by the California Business and Professions Code, Chapter 12.5, all geologic work will be performed by a California Registered Geologist or under the direct supervision of a Califiornia Registered Geologist**.**

5. **What opportunities will NCWAP provide for locally informed people to review products such as maps and roads information for accuracy?**

   There will be a formal review period for local stakeholders, the public, and scientists to examine data, maps, reports, findings and other products.

6. **How will conflicting data will be handled, and will we have a process for landowners to petition for a correction of data?**

   NCWAP will consider all data provided, describe its quality in a data catalogue, and explain our reasons for using it or not using it in our assessment We will also identify data sources in public scoping meetings or individually with landowners. NCWAP will provide a formal review period for landowners and others to comment on accuracy of data and its use for maps, findings and other products in the draft report for each assessment. NCWAP will document those comments, revise our report as needed, and explain our revisions. Given these measures, we do not think that a formal petition process is needed.

7. **In light of the NCWQCB's criticisms about the resolution of data presented in the Freshwater watershed analysis, how will NCWAP develop data of sufficient spatial resolution to make any conclusions regarding watershed condition in the NCWAP process?**

   The PalCo watershed assessment was developed for the purposes of compliance with a Habitat Conservation Plan and was intended to be used with an adaptive management approach to meet HCP water quality and forest practice objectives. The goal of the HCP and watershed assessment work conducted in conjunction with it is to support site-specific management decisions and practices. The NCWAP assessments are not going to be as detailed because they seek to reach conclusions at the planning watershed or coarser scale, are intended for multiple purposes, and are largely dependant on existing information that is made available to the public. Both the scale and the purpose are different.

8. **Reviewers questioned the role of NCWAP as depository of data and whether data and technical advice will be provided to managers?**

   Agencies have been consistently criticized for not making data readily available to landowners and others. Therefore one of NCWAP's objectives was to ensure that all NCWAP data, maps, and reports be available in one place, organized by watershed. NCWAP funded positions to work across departments to create databases and a website for this. We will also provide KRIS CDs (and on-line versions) which furnish the means for citizens and landowners to update, store and analyze new information. Agency personnel from other programs will be briefed and trained on this information and expected by their departments to use it in their work. We will also work with them to contribute their data to the watershed databases.

9. **Are proposed plans going to be part of the overall database? When will new plans be posted into the KRIS system?**

   Management planning is not a NCWAP activity, however various types of regional or local planning documents may be included in KRIS as potential sources of information for NCWAP's assessment. Where NCWAP reviews or uses them, they will also be addressed in the data catalogue and references.

Public Input and Information Access

1. **When will draft materials be available and will there be enough time for review?**

   The first release of public drafts will occur on February 1, 2002 for the Gualala, Mattole and Redwood watersheds. Draft materials will be shared with local stakeholders in the course of NCWAP's assessment activities. There will be a three to four month period between draft and final reports for review and revision, to finalize reports. Landowners and local stakeholders who provided data for our use will be given extra time to review draft materials.

2. **Reviewers asked about fees, the availability of products in black and white, the availability of hard copies, the need to post everything on the web and the need to organize it all by watersheds.**

   NCWAP products will be provided free through the web, KRIS CD's, and in limited quantities as hard paper copies. NCWAP products will also be available through a state website which is under development and will be organized by watersheds. DMG will provide its maps in black and white.

3. **Reviewers said that hard copies, handouts, accessible appendices, and a longer review time would help the public understand the manual better.**

   We will incorporate these suggestions in distributing and making presentations on subsequent drafts of the manual as well as delivering products from each of our assessments.

4. **Reviewers suggested clarifications for manual definitions, text, figures and charts.**

   We appreciate these detailed suggestions and, to the extent that we include all that material in our second draft, will incorporate those that are consistent with final methods.

5. **What will be the process for feedback?**

   There will be opportunities for feedback during the implementation of the assessment and during the review of draft products. In the Gualala watershed, for example, meetings were held up to twice monthly with the local watershed council to

go over activities and information. Team managers for each basin will provide minutes or updates for local stakeholders to keep them informed and a means for contacting NCWAP. The final review and revision process for all assessments will be similar to those outlined for year one above.

6. **Reviewers suggested locations, equipment and software (computers, ARC Explorer) for accessing and being able to interact with materials.**

   NCWAP envisions KRIS as the key vehicle for data, bibliographic information and written reports, and the development of an Arc Internet Map Server site to provide for real time, on-line analyses and custom map production. The Arc IMS site will provide an interactive environment for stakeholders and the public to create a variety of views and analyses of the NCWAP data. We are not currently funded to make equipment available to the public for on-site use at one or more sites, but will explore options.

SECTION II. QUESTIONS ABOUT PARAMETERS AND ANALYSIS

Land Use and Vegetation

1. **Redwood National and State Parks (RNSP) said the land use module was not clear about data analysis methods and objectives.**

   The objective of the land use module is to understand the general location, scale and level of disturbance caused by land use activities across the watershed over time and to assess the implications of this disturbance for streams and fisheries. Analysis methods include using aerial photos, timber harvest plan records, compiled timber harvest GIS coverages, and other information sources. Based on yarding, silvicultural systems, standard operational practices of various eras, evolving regulatory requirements, and disturbance observed in aerial photos, polygons will be rated on a simple 4-point scale for level of disturbance and will be attributed for the date of disturbance. Based on the area, level, and date of disturbance, we will be able to characterize overall levels of disturbance across the watershed or subwatersheds over time.

2. **RNSP questioned whether the dates of photos and remote imagery would capture the appropriate critical natural and anthropogenic disturbances.**

   Efforts will be made to determine how levels of anthropogenic disturbance and major precipitation events have interacted over time to affect the potential for significant impacts on streams and fish. Limited availability of aerial photo series and limited time for their interpretation precludes precise dating of all activities, so some activities and disturbances will be summarized at the decadal rather than annual level. With respect to timber harvest, we should be able to analyze the temporal dimension of anthropogenic disturbance and its interactions with episodic drivers at a finer grain as the result of the work that RNSP is completing for CDF to develop spatial data layers of timber harvest from the initiation of that activity to the present.

3. **RNPS and EPA commented on roads. RNSP emphasized the importance of considering legacy roads and road attributes such as diversion potential and culvert size of crossings. They suggested stratifying roads by geomorphic setting and hillslope position.**

   NCWAP recognizes the importance of legacy roads and their potential for both chronic and episodic sediment delivery to streams. We also recognize that current road coverages are unlikely to show legacy roads. We have decided not to attempt to capture skid trails in our GIS for the very reason identified by RNSP (too many, too much effort for the return) and adopted their suggested approach of using polygons for levels of disturbance. Since many stream crossings will not be visible on aerial photos, our main technique for identifying crossings will be to overlay stream and road GIS coverages. We recognize that the quality and level of detail of these coverages will limit our ability to exhaustively identify crossings and that, given our resources, we will not be able to capture information on diversion potential and culvert size. We will, however, add hillslope position to our EMDS model.

4. **EPA asked for more detail about shade and erosion potential models.**

   NCWAP will not be using any shade models. We had intended to demonstrate a model for projecting riparian recruitment, but do not have the resources at this time to do so. CDF is currently conducting a collaborative review with the Forest Science Project at Humboldt State University of a road erosion model called SEMODL for use in NCWAP.

Landslide Mapping

1. **Will the cause of landslides be evaluated?**

   The specific cause(s) of landslides will not be evaluated, however, features *associated* with landslides will be identified. For example, any roads located across a slope where a landslide exists will be noted.

2. **During landslide mapping, will DMG classify the source or type of landslide, and will they delineate between natural and management related landslides? This is important information for watershed scale, general prescriptions.**

   No, natural vs. management related landslides will not be differentiated, however, natural and man-made features associated with landslides will be noted. For example, man-made features such as roads that are constructed across the face of a slope containing a landslide, or a natural feature such as a stream undercutting the toe of a landslide, will be noted. The *type* of landslide, (such as rockslide, debris slide, or earthflow), relative age of landslide (historically active or dormant),estimated thickness of landslide (if it can be estimated) and other attributes will be used in mapping landslides. In addition to landslides, other geomorphic features such as debris slide slopes and inner gorges will be mapped .

3. **Are the landslides correlated to disturbance such as roads, etc.?**

   Landslides will not specifically be correlated to disturbances, such as to roads on the landslide map and landslide potential maps. However, the maps are constructed in a geographic information system (GIS). Using different GIS layers, numerous combinations can be constructed to depict spatial relationships among different layers such as landslides, roads and land use.

4. **Will there be any information available in individual assessments relating to slide age, time of movement, or the activity or inactivity of slides?**

   Yes, typically a time-series of aerial photographs covering several decades will be interpreted during a watershed assessment. The photograph year in which a landslide feature can be identified will be noted, thus giving the time (within a few years) in which landslide movement was first noted as well as subsequent/ongoing movements.

5. **Redwood National and State Park (RNSP) asked how NCWAP will address sediment production and transport with respect to surface, rill and gully erosion.**

   NCWAP does not have adequate information or resources to address erosion at a fine scale nor to collect detailed road information. Surface, rill and gully erosion will only be addressed tangentially as one of the potential results of land-disturbing activities such as timber harvest, grazing, etc. Potential sediment impacts from legacy and current-day roads and specific information about stream crossings will be addressed to the extent that existing information allows. Where possible, we will use SEDMODL to estimate road sediment delivery potentials. We will also factor hillslope position into the EMDS watershed model's analysis of roads. Where finer grained road information exists, the EMDS model could be modified to incorporate it.

6. **Is the landslide data available now to RPFs and what are the requirements that these landslides be considered in the THP?**

   Existing landslide data developed by DMG in the 1980's is available both digitally and on paper maps. The new landslide identification and Relative Landslide Potential maps developed by DMG as a part of NCWAP also will be made available both digitally and in hard copy. The Forest Practice Rules, and the CEQA umbrella they operate under, both require that THP proponents make use of all reasonably available information pertaining to the potential impacts of the timber harvest being proposed, including slope-instability-related impacts. CDF, along with DMG as a part of the official THP review team, review THPs to ensure that all such information is included in the THP and/or official record. Where the THP submitter does not utilize this information, CDF may request it and may reject a THP if the submitter fails to do so. (See, e.g., the Forest Practice Rules at 14 CCR 898.2, Forest Practice Rule Technical Rule Addendum No. 2).

7. **What is the difference between new landslide maps and older products?**

The older products (generated in the 1980s by the Division of Mines and Geology) include maps of the locations and the aerial extent of landslides; these were created using one set of aerial photographs and plotting them on paper. New products will use computer Geographical Information System (GIS) layers and attributes to maximize map and data access via the internet, CD, or paper copy. Each landslide will have a set of attributes that will include specific information such as landslide type, year of photographs used to identify the landslide, estimated thickness, etc. The new landslide maps will be constructed using a series of aerial photos rather than a single set. The maps will be available in an electronic format and will include the database of landslide and geomorphological features attributes used to construct the maps. The landslide map also includes the geology layer. The landslide potential map was not produced with the watershed maps in the 1980s. The landslide potential map includes the landslides, geology and landslide potential on the same map. The maps will be available in color and black and white.

8. Are you using recent aerial photography for the landslides?

Yes, the most recently acquired available aerial photographs are being used, specifically the 1999-2000 photograph set.

9. Will NCWAP landslide data be compared with soil survey information?

Time permitting, soil survey information, as well as other available data, will be compared to the NCWAP landslide data.

10. Will it include seismic history?

No, seismic history will not be included in the evaluation of landslides. Landslide histories will be evaluated *using a time-series of photographs.*

11. RNSP said that using digital elevational models (DEMs) for channel gradient can produce spurious data.

CDF and DMG are aware of some problems that can occur, and have been working with the Forest Science Project to evaluate the accuracy and utility of our DEM data. We are going back to the original contours to examine the utility of interpreting slopes from them and are examining the potential for deriving our own DEMs rather than using USGS's.

Streams

1. What will be the smallest stream order mapped?

In general, all blue-line streams found on USFS 7-1/2 minute quad maps will be in our GIS database. In addition, smaller streams will be mapped using streams indicated in timber harvesting plans and any finer scale stream coverages provided to us by landowners or other agencies.

2. Not all blue line stream density coverages are equal. Please discuss quality assurance and quality control.

The quad-to-quad variation in stream density mapping tends to be quite obvious. Some level of control for this variation can be important, for example where one is estimating the number of road/stream crossings. Where the density of streams mapped is unusually high, we can use modeling tools to limit the extent of the stream network included in the analysis. Where the density of streams mapped is low, we can use our digital elevation model to develop a higher-density stream network.

3. How will reference streams be identified?

Reference streams are identified as streams that exhibit unimpaired physical and biological characteristics and habitat conditions that support fish populations at or near historical numbers. We will look at reference sites proposed through the Monitoring Study Group, an advisory committee to the Board of Forestry, which has developed a preliminary list of reference streams for the North Coast using largely professional judgment. We will also look at sites proposed by watershed groups, landowners or other local sources. Unfortunately, reference streams are scarce, and may not exist in most watersheds. Where they do not exist, we will also use scientific literature to obtain information describing "reference conditions".

4. What sources will be used to build temperature curves?

We prefer to use "continuous" data, collected by data loggers, such as Onset Corp's Hobo Temp®, provided to us from cooperators. We intend to present the raw data plots, cumulative distribution plots, floating weekly averages, and hours above various temperature thresholds. Temperature thresholds to which these data will be compared will come from the literature and TMDL targets where applicable. We will

use data to obtain a maximum weekly average temperature (MWAT) and other temperature metrics.

5. Is any long-term temperature monitoring going to occur in the watersheds? A one summer monitoring program would not give a true temperature indication.

This is a good point. Some temperature monitoring sites have multiple years of data, others do not. We are hoping to set up cooperative agreements with landowners and watershed groups to conduct long-term temperature monitoring. For the assessment, we will use what data are available and state the limitations of the data. Long-term monitoring is entirely dependent on landowner cooperation for access to the streams and existing data.

6. Why is the State paying for more gages when it's not paying its 50% share of existing USGS gages? At least a 10 year commitment is need to make gage data of any value.

The State is still paying for a number of "shared" gages with USGS. A special statewide committee to evaluate stream gauging needs in the region and explore funding opportunities was set up in January of 2001. NCWAP as well as Water Board monitoring funding will be used to keep historic gages maintained, as well as add gages to streams for long-term records.

7. The manual doesn't discuss channel complexity which is important for winter habitat.

Channel complexity is incorporated to a degree in the thalweg profiles included in the water quality portion of the manual. To the extent data are made available to us, and we are able to collect information in the field, we will present thalweg variability as a surrogate for physical channel complexity. Fish and Game habitat surveys provide detailed information that can be used to describe channel complexity. Existing habitat data will be used and supplemented by new field data as funding and access allows. Off channel habitat is also listed as a habitat concern on page 28, Table 1 of the draft NCWAP manual.

8. Are the 24 habitat types used by DFG relevant to the Limiting Factor Analysis?

For general discussion. They will be collapsed to the level 3 types: riffle, flatwater, and pool. However, pool types will play an important role in the EMDS output because of the shelter elements they may or may not provide.

9. How repeatable is habitat typing, and will it be used for diagnosis or monitoring?

It will be primarily used for diagnosis in our initial assessments, and will provide data, such as percent pools by reach length, percent shade canopy by reach, to the stream reach part of the watershed model (Ecosystem Management Decision Support or EMDS) which will be used to make determinations concerning current anadromous reach conditions. Although there are questions about the repeatability of stream reach typing, the data collection methods for individual parameters are repeatable. We are testing a basin level, randomly selected stream reach sampling design that will allow the parameters to be used at the planning watershed level in future EMDS runs, and for future monitoring projects.

10. Can NCWAP use coho habitat typing data collected by landowners?

Yes, if it is rigorously collected using DFG's standard methods, and passes QA/QC.

11. Why has NCWAP created a stream classification with two classes below 2% gradient?

Based on gradient and channel confinement the stream classification is designed to identify similar channel segments and develop a hypothesis of channel response throughout the watershed. The class breaks are very similar to those developed in Washington State and follow the work of Montgomery and Buffington.

12. One reviewer suggested that there could be negative effects of large woody debris (LWD) on habitat and streamflow in some channels, and that the critical question be changed.

We agree that the role and value of woody debris must be evaluated within the context of different stream types. CDF has funded a significant effort to assemble the current state of the knowledge regarding large woody debris and its functions in streams. This work has produced an extensive annotated bibliography and a literature review report that includes a discussion of LWD management issues.

Water Quality

1. What is the role of water quality analysis in NCWAP?

The North Coast Water Quality Control Board has agreed to coordinate their Surface Water Ambient Monitoring Program (SWAMP) with NCWAP, thereby contributing a considerable amount of water quality information to the NCWAP assessment where landowner access is provided. Board staff will provide assessments of water quality on reach and sub-watershed scales. Water quality data (as available) will include chemical data (like nutrients, dissolved oxygen), physical data (like temperature), and sediment data (like amount of silt in riffles and pools, streambed composition). Those parameters provide a good indication of the overall health of the watershed

and its suitability for anadromous. The Water Board also helped develop the EMDS watershed model which incorporates water quality parameters, in order to identify limiting factors for fish. As described in the first draft of the manual, the Board will also work with DWR and DMG to estimate stream flow, and with DWR to estimate water use based on stream flow and water rights databases.

2. **Will NCWAP test for herbicides since herbicide use is a big concern in Freshwater THPs and on north coast?**

   Water quality does compliance checks on silvicultural-related applications. Also, we are incorporating pesticide testing into the sampling under the Surface Water Ambient Monitoring Program (SWAMP). Pesticides are difficult and time-consuming to monitor and funding is limited, but SWAMP will devote some funding to actual pesticide sampling, as well as sampling for surrogates, such as vitellogenin in male fish (an indication of exposure to some pesticides).

3. **Could NCWAP look at Agricultural Commissioner county spray records?**

   We may be able to do some cursory review of those records, but they do not exist in an easily digestible format, vary from year to year, and do not provide actual information on what is or may have been in the water. That is why we are using part of the SWAMP funding to sample in the streams themselves.

4. **Will there be an opportunity for testing or monitoring turbidity?**

   Some turbidity monitoring will be done under the SWAMP sampling and made available to the NCWAP assessments. The extent to which we can fund that is not known as this time, however.

5. **Turbidity should be considered when picking reference streams.**

   Yes, we will use those data when available to evaluate a reference stream.

6. **Does the clear-cutting of forests impair water quality?**

   Water quality impacts from clear-cutting have been documented. The extent and longevity of those impacts depends on a host of factors, including slope, yarding method, heat of burn, rainfall timing and intensity, proximity to streams, amount and quality of riparian zone buffers, soil types, aspect, road density, types, and conditions, etc.

<u>Water Quantity</u>

1. **NMFS commented that water quantity and flow needs to be more emphasized in the assessment process.**

   NCWAP recognizes the importance of flow and has included it in our watershed model (Ecosystem Management Decision Support or EMDS) . DWR will fund new

stream gages, provide analysis of historic stream flow data, and compile water right information. While we do not have the resources to provide detailed spatial stream flow, DWR is working with USGS to test a method for modeling flow at subwatershed and tributary levels that could improve the use of our watershed.

2. **Watershed assessment must include an accounting of available surface water, ground water, water rights, and water usage by those with and without water rights.**

   Surface water rights information will be compiled by NCWAP. Ground water usage and its impact on stream flow and determining actual stream flow diversion amounts are beyond the scope of NCWAP due to staffing requirements and required access to streams and diversions on private property.

3. **How will the NCWAP process affect the issuance of water rights permits by the SWRCB?**

   We will provide the assessments to the SWRCB with our urging to use them in their evaluations of water rights applications. While the assessments will be useful to the SWRCB, they are not expected to contain all the information and analysis the SWRCB will need for those decisions.

4. **Are water diversions and agricultural ponds going to be included?**

   We will include information on diversions to the extent we have the data. At a minimum, we will include the locations of permitted diversions and their water rights information. NCWAP will not determine or monitor actual diversion amounts.

Fish Data

1. **NCWAP needs to emphasize the intrinsic value of fish rather than just commodity /sport fishing value.**

   We will do this. Anadromous salmonids are an integral component of coastal stream and riparian ecosystems.

2. **How is existing Region 3 steelhead monitoring data being used?**

   It will be incorporated wherever it is available to our assessments.

3. **The Coho in Scott Valley are "wetlands Coho" which are different than "coastal Coho". Will that variation be taken into account?**

   The historical conditions of the pre-development beaver pond and riparian system that supported the "wetlands" coho of the Scott Valley will be researched and acknowledged vis-à-vis current assessment conditions and today's coho stock status.

4. **Who is the agency lead for collecting data related to fish habitat and for analyzing fishery questions?**

   DFG is lead on fishery questions and in identifying limiting factors at the stream reach scale. They will use related information from the other disciplines in this process and then work with CDF and other departments to assess limiting factors at the watershed scale.

5. **Can NCWAP include a GIS layer of species occurrences from the Natural Diversity Data Base?**

   Since NCWAP is not assessing habitat for terrestrial species, we are not working with NDDB. Since the NDDB does not include much data on aquatic species, we are not including it at this time. We intend to develop fish species and distribution layer(s). Anadromous salmonid presence and distribution will be shown on maps created with GIS.

6. **How will refugia be incorporated to address stewardship goals? It could be part of the effort to identify reference streams. This should be added to the recommendations.**

   Refugia are locations where populations of salmonids have managed to persist through events which impacted most other populations in the region. The scale of refugia can vary from small "hotspots", such as isolated "cool pool" habitats, to larger reaches and whole watersheds, sometimes called "source areas" or "source watersheds". Larger scale refugia may include "key watersheds" with all functioning habitat components intact as well as watersheds that do not have optimal overall salmonid habitat and are simply the remnants of larger former ranges where fish persist. The smaller refugia may also exist in poor condition watersheds. In the context of metapopulations (i.e. all fish populations inhabiting the region), the source areas are important for re-colonization of other watersheds over time, and the smaller scale refugia may be critical to the near term persistence of a population in a poor quality watershed with fragmented habitat. The smaller scale refugia are generally more vulnerable to disturbance than the larger ones and present significant challenges to restoration in terms of protection and connectivity. NCWAP fieldwork may detect refugia in the course of stream reach sampling, particularly for pool shelter and off channel habitat. Outputs from our watershed model (Ecosystem Management Decision Support, or EMDS) can assist in identifying watershed conditions where we might expect to find stream reach or larger refugia, and where

more intensive sampling could be focused. NCWAP is not however generally likely to pick up the smaller remnants. NCWAP *will* incorporate information about known refugia of any scale into our assessment. Both types of information can be used to focus the development of comprehensive conservation biology strategies utilizing easements or acquisitions, stewardship projects, and habitat restoration projects.

7. **Is there a linkage between electro fishing and other invasive research and the number of salmon that return to spawn and long-term survival? As a control, keep completely out of creek, spend funds on riparian borders, and see if salmon return.**

   We will use stream bank and snorkeling observations, and minnow trapping as well as e-fishing for data collection. All DFG sampling is done with extreme care and avoidance of fish mortality at all costs – including getting out of the stream. We have some purchase and easement funds in our current DFG Fishery Grants Program funds, and they are being used for these purposes. Some data collection is needed to determine change in populations.

8. **Is there a linkage between juvenile trapping, hatchery rearing, and the number of salmonids that return to spawn, and with the salmonids long term survival?**

   Long term impacts to salmonid stocks from hatcheries and various hatchery and rearing practices, including juvenile trapping are under investigation by several researchers. For example, hatchery salmon stocks that are released at a larger size than naturally produced fish often have increased survival to adulthood. In the short term that may well result in higher escapement, which may or may not be a viable restoration goal depending on fish population and anadromous stream reach condition in the basin or subbasin. These hatchery issues will be addressed on a case-by-case basis with a concern for transfer of stocks, impacts to naturally produced stocks, and other genetic issues.

9. **To manage and improve the native fish population, why isn't the population of seals considered?**

   Seal and sea lion populations in relationship with fish populations are considered by NMFS. NCWAP is a watershed assessment program and does not focus on marine issues.

Ecosystem Management Support Decision (EMDS) and Limiting Factors Analysis (LFA)

1. How will the decision support model be validated and will it be statistically defensible?

The watershed model (Ecosystem Management Decision Support or EMDS) organizes and integrates many kinds of information into a logical framework that is consistent, understandable and easily modified. It does not involve basic scientific research, as in attempting to draw inferences from statistical models, nor is its purpose to predict a dependent variable from an independent variable. Its goal is to reflect the status of a system (in this case, a watershed) on the basis of many facts, using a type of set theory (degrees of membership to a group, such as 'watersheds suitable for salmonids') from a formal branch of mathematics called linguistic modeling. The outputs of the model will be compared with field observations and discussed with the public and peer reviewers to identify any logical inconsistencies. These may indicate that we have not properly represented the role or relationships of factors within one or more individual logic networks, are missing critical data somewhere in the model, or need more refinements for some factors in the model.

2. Redwood National and State Parks (RNSP) said that EMDS is not well tested.

That's true because EMDS is a relatively new tool. We will conduct another peer review workshop with outside scientists to review the use of EMDS to Gualala, Redwood, and Mattole watersheds in order to evaluate its comprehensiveness and consistency with existing watershed and fisheries science, and to recommend ways to improve the model if needed. We would welcome RNSP participation.

3. RNSP was concerned that factors affecting fish habitat are evaluated only at the reach scale.

This is not the case. The draft manual unfortunately showed only examples from the stream reach part of the original model used in the northwest. The entire EMDS watershed model also includes upland conditions such as land use, vegetation cover and slope stability, and roads. All these factors are evaluated with respect to their effects on the overall suitability of the watershed for supporting fish habitat.

4. How much on-the-ground assessment will there be of the limiting factors?

The model will be used to identify limiting factors for salmonids at the stream reach and watershed levels. All of the stream reach data used in the model is derived from "on-the-ground" work, either by DFG's habitat typing, Water Board measurements, or from other sources such as landowners. Much of the watershed level data is collected from maps, air photos, or satellite imagery. Landslide, sediment storage, and land use information may entail some field verification, depending on resources and landowner permission.

5. **It's very important to fully disclose the LFA model's limitations and its spatial and temporal constraints.**

   We agree. We intend to identify data gaps where additional fieldwork and monitoring could enhance the model, and to explicitly discuss the appropriate uses and limitations of the model in each synthesis report.

6. **NMFS requested a review of the completed Limiting Factors Analysis after it's fleshed out.**

   We agree NCWAP will include NMFS in a peer review of the variables used, their respective reference values, and the logic structure of the model. We consider EMDS development to be an adaptive process, therefore the LFA and even the methods may need to be adapted as we progress.

7. **How will ocean conditions be incorporated into Limiting Factors Analysis since salmonids spend at least half their lives in marine stages?**

   NCWAP is assessing freshwater and estuarine conditions and life stages; therefore we can only identify limiting watershed and stream reach factors. We are aware that the ocean is a major factor, but it is beyond the scope of our assessment.

8. **How will pool depth, an important aspect of salmonid habitat, be incorporated into the EMDS model?**

   Both pool depth and pool complexity will be evaluated in the field and used in the EMDS model.

9. **When doing limiting factors and describing capacity of different watersheds to support salmon, we should distinguish natural from man made causes.**

   We will do so where they can be distinguished. Where the causes may not be clear, EMDS can be used to develop testable hypotheses and to focus more information gathering.

10. **Will natural variability be taken into account in EMDS? Will NCWAP use the same EMDS model for the entire region?**

    Natural variability will be taken into account in a qualitative historical analysis and in the EMDS model. Each assessment will review historical information and trends, using this information as the basis for preliminary hypotheses about linkages among historic and current watershed factors. The EMDS model will then assist in examining potential linkages among current watershed conditions and salmon habitat suitability, as well as identify limiting factors at the reach scale. The EMDS model is designed for the whole region but can be adapted for different watersheds by incorporating "switches" for different watershed conditions (e.g. vegetation types); individual "suitability" value curves for each watershed (e.g. stream flow); and opportunities to change suitability value curves based on new research or local

reference watershed data. EMDS is very transparent so that underlying assumptions can be examined for their applicability to a given watershed. It can also be run to test the sensitivity of different factors to help determine if you need more information on some factors.

11. EMDS is too simplistic an approach because there is a large gray area in what fish tolerate, not absolute values or true/false.

One of the explicit objectives of this model is to express suitability as a range of values, including the "gray areas", rather than using a threshold approach. Furthermore, because this model integrates different factors, it allows for different combinations of factors to produce suitable conditions. Finally, the process allows for incorporation of local information and model adaptation with local research or reference watershed site

12. Given the limited duration of NCWAP fieldwork, the limiting factors assessment might not be as complete as landowners' assessments, and should not be considered the final opinion.

We agree that NCWAP's assessment is not the final word, but an effort to provide a consistent process upon which to build. NCWAP would like to work with local stakeholders to incorporate their information. These joint analyses could strengthen both.

13. What has been the largest contribution to the decline in fish populations?

Reduction and loss of habitat due to developments and water use by colonization and growth of human populations and their associated land use impacts, including elevated fishery harvest rates on the past 150 years.

14. How will the assessment link DMG's landslide potential data and CDF's vegetation data with the Limiting Factors Analysis?

DMG's Relative Landslide Potential maps and CDF's vegetation and riparian vegetation data will provide information at several sites in the EMDS model. EMDS, which will also include land use information, will then be used to assess conditions by planning watersheds and to identify hypothetical linkages between watershed conditions and fish habitat quality at the stream reach. DMG will also assess fluvial sediment processes in stream channels, focusing on areas suggested by DFG. This will strengthen identification of potential linkages.

15. How will thresholds be determined so that people don't manage to minimum standards*?*

The EMDS watershed model does not use a single threshold approach. For each parameter it provides a range of values for individual watershed and stream reach factors which vary in suitability for salmonid populations. The point of the model is to show how different factors "add up" to affect overall suitability for a given watershed.

Therefore, the same "numeric" value for a factor may limit fish in one watershed but not in another due to higher values for other parameters.

16. How will failures be included, and what will we learn from them?

This question appeared to refer to on-the-ground management failures. Where conditions are not suitable for fish, we will look at potential linkages with both historic and current uses, develop hypotheses about causation, and make restoration and general management recommendations for addressing limiting factors. We are interested in supporting local efforts to continue the assessment and learning process with monitoring and adaptive management.

17. Will there be a chance to review the LFA model after it's built but before it's used?

Yes, we will have additional peer review on the model, using the first three watersheds as demonstrations and improve the model per their recommendations as feasible. It will be available for public review so those people who want to familiarize themselves with it before we reach their watersheds. We also expect to continue to improve it over time.

18. You need to make and promote EMDS so that local groups can take them and run them in future, e.g. RCD's, UCCE.

We agree. We will invite several UC Extension specialists to participate in the model's peer review in order to increase the chances that they will use them with landowners and groups. .

<u>Interdisciplinary Synthesis</u>

1. Will you have a synthesis chapter of all the information from various programs/data as it relates to cumulative effects of watershed conditions and limiting factors for specific life stages of salmonids?

NCWAP will produce a synthesis report for every basin with summaries of information at subbasin levels and appendices of data and finer grained analyses. The synthesis report will summarize both individual department data and the results of the interdisciplinary EMDS watershed model. The stream reach component of the model will be used to identify instream habitat factors affecting fish; the overall watershed model will be used to identify watershed conditions affecting suitability for fish. The synthesis will include formulating hypotheses about likely cumulative watershed effects. We will not, however, be making NEPA- or CEQA-like calls on levels of CWE significance, nor will we be evaluating the potential for significant CWEs to occur as a result of specific future project activities.

2. Redwood State and National Park (RNSP) asked for greater detail about how synthesis would occur and who would conduct it.

Interdisciplinary teams for each basin will use the following iterative process for assessing watersheds and capture the results of each step in a synthesis report for each basin:

- Discuss data and analysis by individual disciplines in order to develop preliminary descriptions of conditions and likely trends at the superplanning or planning watershed levels;
- Formulate preliminary hypotheses about linkages, limiting factors, potential risks, and likely cumulative effects at appropriate scales;
- Ask CDF's Fire and Resources Assessment Program (which has watershed, forestry, GIS, wildlife and other specialists) for additional GIS-based analyses to help the team explore and refine hypotheses;
- Review the outputs of EMDS model (run by CDF and DFG with existing and new data), at stream reach and planning watershed level, to explore whether results support preliminary hypotheses or suggest others;
- Identify potential limitations of the model and overall assessment process and discuss recommendations for improving it.

Each basin team will be led by a different department, depending on availability and contacts with stakeholders (e.g. DFG in Mattole, Water Board in Gualala, and joint CDF/DFG in Redwood). This person will lead the team through these steps to develop watershed level hypotheses, findings, and recommendations together.

3. **RNSP said that NCWAP should be synthesizing enough information to identify whether cumulative watershed effects (CWE) exist and to address risks of future or potential damage. They suggested devoting a separate section to CWE and addressing them at the sub-watershed unit basis**.

Our analysis work will address watershed conditions at planning watershed, sub-basin, and basin-wide levels. The information NCWAP develops will identify the potential for cumulative watershed effects to a limited degree through our evaluation of current watershed and stream reach conditions, including the potential for downstream effects. However, we will not be making NEPA- or CEQA-like calls on levels of CWE significance, nor will we be evaluating the potential for significant CWEs to occur as a result of specific future project activities. We will include recommendations for restoration activities or general mitigations that we believe need to be applied to address existing watershed conditions that are adverse for salmonids.

Part of CDF's responsibilities under NCWAP is the development of a CWE assessment framework. CDF is currently developing a contract and workplan with the University of California, Berkeley, for the development of this framework. While it will not be completed in time for the first round of NCWAP assessments, it will be available in the future. Also, CDF is working to find the resources to undertake the pilot risk-based CWE assessment method recommended earlier this year by the University of California Committee on Cumulative Impacts (the so-called "Dunne Report").

4. **EPA suggested using the Klamath Resources Information System (KRIS) to capture, integrate and present watershed information and encouraged the development of testable hypotheses to support adaptive management.**

   KRIS will be used to capture regional information sources, data from each NCWAP participant, and final products for each basin assessment, including the synthesis report. The assessment process will include the development of hypotheses about linkages among watershed conditions, processes and uses. These will be captured in the synthesis report for each basin.

APPENDIX

SUMMARY OF PUBLIC COMMENTS

Four public meetings, a meeting with National Marine Fisheries Service, and a meeting with environmental group representatives were held to provide an opportunity for the public to provide input to the North Coast Watershed Assessment Program (NCWAP) Manual (see table, below). The public meetings were hosted by the UC Center for Forestry, and facilitated by UC Cooperative Extension Forestry Advisors and Specialists. The public meeting in Greenview was held in conjunction with the Scott River Watershed Council, whose regular meeting night it coincided with. The environmental groups' meeting included representatives of the Sierra Club, Environmental Protection Information Center, Humboldt Watershed Council, and Salmon and Steelhead Restoration Federation.

Date	Meeting Type	Location	Attendance	Code
5/9/01	Public	Fortuna	125	PMF
5/10/01	Public	Fort Bragg	64	PMFB
5/15/01	Public/Scott Watershed Council	Greenview	50	PMG
5/16/01	Public	Weaverville	10	PMW
5/2/01	Environmental groups	Ukiah	14	EGM
5/25/01	National Marine Fisheries Service	Ukiah	9	NMFS

Attendees at the public meetings submitted verbal and written comments. Verbal comments were recorded by NCWAP staff. These comments are collected here, reorganized according to topic of concern and edited for readability. Each comment is coded at the end in order to identify the meeting at which it was made. Additional written comments submitted to NCWAP are also incorporated here, with labels that identify the person or group making the comments.

The comments are organized by topics in three sections. Comments collected into Section One voice questions and concerns about the watershed assessments being proposed. The most common concerns posed were those about the scope of the NCWAP work and how results will be used. Conflicting opinions were given on whether specific recommendations for restoration and management should be made as part of the assessment process.

Many comments were concerned with connecting the results of the assessment to restoration efforts. Some people felt that the limiting factors for fish were already well known in some watersheds, and that solutions should be implemented now, rather than waiting for further assessments. Other people questioned how well the NCWAP results would be integrated into the responsibilities of state and federal agencies involved in fish habitat conservation. Still others

were concerned about the use of a broad-brush assessment process in regulatory decisions, especially if data quality is not high.

Some questioned the watersheds chosen and how they relate to the TMDL process. Concerns were voiced that NCWAP should integrate and coordinate with other state, federal and local assessment processes so that these agencies would be able to collaborate effectively. NCWAP was urged to work collaboratively with watershed groups, although some group members voiced fear about the NCWAP process derailing the efforts they are already conducting in their watersheds. Others also cautioned against relying on watershed groups for public input exclusively.

Private landowners were especially concerned about the NCWAP process, particularly that data gathering and sharing respect their privacy and management decisions. Data accuracy is particularly important to them, as well as NCWAP procedures for addressing disagreements about data and for updating the assessment when new data become available. Other people expressed fear that NCWAP results would lead to regulation that would impact private land-owners.

Comments about access to NCWAP information make it clear that methods for sharing information with the public should be carefully considered. Physical locations should be well chosen and supplied with appropriate software and hardware to make products usable. Information should also be made accessible to those who are not computer users.

Comments collected into Section Two ask specific questions about the parameters to be assessed, including topography, landslides, roads, vegetation, streams, water quality, water quantity, climate, social factors, and fish. Speakers at each meeting recommended evaluation of the cause of landslides, as natural or management related. Comments on vegetation assessment emphasized the need to characterize diameter, crown closure, and harvest history accurately. Various commenters requested that stream data be of long enough duration to be representative, habitat typing be done so it is repeatable (which may require training for landowners and professionals), and water quantity information have greater emphasis in the assessment process. Several commenters requested that social and economic information be considered on an equal footing with biological and physical data. They specified that local data from counties, and local experts be incorporated as well as the most recent statewide data, disaggregated into watershed regions.

Use of the EMDS model to complete a limiting factor analysis was questioned by some as too simplistic or uniform. Some people were concerned it would be misleading if it did not incorporate information on ocean conditions. Others emphasized the need to validate the model through on the ground assessments, and to fully disclose the model's limitations and its spatial and temporal constraints. The links between the assessment of other parameters and the model should be demonstrated. Additional concerns were voiced about how CDF would direct the cumulative effects analysis and its relationship to the UC Berkeley-sponsored cumulative effects report (i.e., Dunne report).

Comments collected into Section Three pertain to specific locations. Numerous comments voice concerns about the role of DFG in the Mattole watershed, especially its law enforcement role in dealing with "forest defenders". An additional comment concerns the watershed "governance" strategy as it applies to Redwood Creek.

LOCATION OF COMMENTS BY TOPIC

I. QUESTIONS AND COMMENTS ABOUT THE WATERSHED ASSESSMENT PROCESS

PHILOSOPHY OF WATERSHED ASSESSMENT
Will you establish a desired condition for land use/watershed conditions/species needs? *(5/9/01 PMF)*
What is the relationship between assessment and analysis? How can one be done without the other (simultaneously or iteratively) *(5/10/01 PMFB)*
Isn't a role of science to explain causation? *(5/9/01 PMF)*
Is there a pilot project for NCWAP? *(5/15/01 PMG)*
I am concerned about "using the same assessment criteria across very different geographic *(5/2/01 EGM)*
What is the NCWAP eight year goal for organization capacity and function? i.e. how should adaptive management work in 2009? *(5/9/01 PMF)*
Timber harvesting is only a portion of possible land use activities. How will other land uses be incorporated into the assessment program? *(5/10/01 PMFB)*
The premise of NCWAP is "This is what we know at this point in time." I'm concerned that NCWAP will follow SNEP and other "data gathering but not decision-making" efforts and become the gospel as to current conditions despite acknowledged variability in the quality and accuracy of the information collected, and qualifications on the use of the data. Nonetheless, because it was "the best that we have", all the data was treated equally in terms of quality and used without sufficient qualification. NCWAP needs to be scrupulous in it Quality Assurance and Quality Control. *(5/16/01 PMW)*
We need to get better description of this contract from Russ Henley. (*5/2/01 EGM)*
Who is on science review team? (*5/2/01 EGM)*
Reorganize the figure 5 pyramid to reflect percent of effort involved *(5/2/01 EGM)*
Substitute "assessed" for "existing" in last critical question *(5/2/01 EGM)*
I applaud the effort; I believe that the collection of base line data is absolutely essential to proper decision-making and resource management. I there fore also believe that the methodologies use to collect the data should be unbiased, and that the outcome should not be predetermined by current opinion. *[6/8/01 Norman Ross Burgess]*
In the big picture, government currently takes on the "image" of mediating between stakeholder groups and the public at large ("to improve decision-making by landowners, watershed groups, agencies and other stakeholders") but in fact, largely due to the influence of campaign money in politics, government is actually exercising its resources to insulate the regulated from regulation. From one perspective, the NCWAP process could be viewed as publicly funded "Tobacco Science"….Given the big picture, this isn't to say that the NCWAP isn't needed, because it is. NCWAP is needed. What is envisioned is a system of adaptive management that relies on efficacious monitoring. And, efficacious monitoring necessarily will be cost effective monitoring. [*6/1/01 Tim McKay, Northcoast Environmental Center]*
There is a lot of private land involved in these watersheds, and a lot of regulatory activity going on … It isn't the fish, deer, or coyotes being regulated. It's the people. So I would urge you all to take a serious look at the social economic aspects of the watershed "needs" assessment, or else this NCWAP will be a waste of both time and taxpayer money. …I think NCWAP holds

PHILOSOPHY OF WATERSHED ASSESSMENT
great promise. If NCWAP would take the time and find a way to incorporate the social/economic factors into the watershed assessments, they would be the first watershed assessment by any agency to accomplish that – sand set an entirely new standard for watershed assessments. *[6/1/01 Jean Saffell]*

SCOPE OF NCWAP WORK
Are there any plans to adjudicate water rights? *(5/9/01 PMF)*
The Trinity River program has good science – but politics weigh in after assessment. How will the assessment be implemented? Will policies be proactively pushed? *(5/9/01 PMF)*
If no resource management prescriptions will be recommended, how will watershed assessments lead to needed improvements on federal, state and private lands? *(5/9/01 PMF)*
Will you prioritize restoration actions necessary to protect salmonids/habitat? *(5/9/01- PMF)*
If the assessment process will lead to restoration recommendations, why can't it lead to management prescriptions? *(5/25/01 EGM)*
NWCAP outcomes seem to include restoration priorities. (i.e. NCWAP is not just the collection of information, but also its analysis and use in decision-making) *(5/15/01 PMG)*
Please limit recommendations to needs for further collection and management of data only. The *Methods Manual*, page 24, states that the report "provides recommendations for fisheries restoration and land management practices that will improve the factors that are limiting the populations of anadromous salmonids". It is the consensus of the Council's Technical Committee that NCWAP after such a brief assessment could not make such recommendations accurately. *[6/4/01 Scott River Watershed Council Technical Committee]*
I strongly urge you to make your WA stand on its own as the best technical compilation and analysis of historic and current conditions, and leave any recommendations for what to do about it - the Strategy - out of the WA. Your WA itself will be put at risk of being totally ignored if your restoration And management recommendations (other than for further studies or analysis) are seen by the local participants as naive, insulting, wrong, or threatening. The solution / strategy / plan stage needs to be carefully and jointly thought out, not as an afterthought to the WA. Please keep the Objective part separate from the Subjective." [*5/21/01 Sari Sommarstrom]*
You folks are the experts – tell the people where the work is needed and what is needed! *(5/9/01 PMF)*
What historical data will be used for restoration recommendations? *(5/2/01 EGM)*
Can NCWAP set some quantitative harvestable fishery goals for a watershed or subwatershed based on assessment findings? *(5/2/01 EGM)*
Can NCWAP provide a pilot project to assist in developing a management plan including a cumulative effects analysis to tier off assessment? *(5/2/01 EGM)*
Based on assessment of water supplies & usage; in collaboration with local government or private landowners, apply for water

SCOPE OF NCWAP WORK
rights for fish in these watersheds. (this will get around the Fullerton decision.) *(5/9/01 PMF)*

HOW RESULTS OF NCWAP WILL BE USED
What will be done to improve watersheds once the watershed synthesis is done? *(5/9/01 PMF)*
When assessments are done, will we still be in a "so what" situation? *(5/9/01 PMF)*
How will the goal to guide cooperative approaches to "protect the best" through conservation easements, etc. be achieved? *(5/9/01 PMF)*
How will you use this information from NCWAP to alter/change regulations concerning human induced impacts? *(5/9/01 PMF)*
Who is going to implement the results of all this research? Thus far, in this region, we have only witnessed resistance and denial on the part of CDF, F&G, & M&G regarding limiting factors and CI. Cumulative impacts have been extensively researched and documented by Redwood Sciences Lab (USFS SWRS) and consistently ignored by CDF and F&G. *(5/9/01 PMF)*
While I think the NCWAP holds a great deal of promise, I fear that it will turn out to be just another tool for regulatory agencies to club the private landowner. [*6/1/01 - Jean Saffell]*
How receptive are federal agencies: NMFS/USFS/EPA to using this information for planning, prioritization, permitting, etc.? *(5/9/01 PMF)*
How will the LFA findings be used in daily operations by various agency programs, i.e. how are we building it into ongoing decisions? *(5/25/01 NMFS)*
Will NCWAP results have credibility with Federal agencies, laws? *(5/15/01 - PMG)*
Can you give a hypothetical example of how the watershed assessment results will be used? *(5/9/01 PMF)*
How will protections be put into place when trends are obvious? *(5/10/01 PMFB)*
Following the Limiting Factors Analysis presentation, which gave "increasing flows" as an example of a limiting factor, the question arose - "How do you plan to increase water flows?" *(5/15/01 PMG)*
Concern about the unqualified, or inappropriate use of NCWAP products. *(5/16/01 PMW)*
How will NCWAP data be used? Is there any guarantee that data collected will not damage the local communities? Promise NCWAP will not jeopardize the local community. *(5/15/01 PMG)*
For Navarro – agricultural diversions are a threat – are protections being affected by this process, since its not on the first year list? *(5/10/01 PMFB)*
During the presentation on EMDS, the term "maximize fish" raised concern that NCWAP will be narrowly focused on one or a few species of fish to the exclusion of other wildlife, not to mention human interests. Single species management, like CASPO and NSO, merely leads to the extinction of other species, and job security for endangered species specialists. *(5/16/01 PMW)*

ASSESSMENT TIME FRAME
How long will it take to do all of this? *(5/9/01 PMF)* Don't you think this is a little unrealistically ambitious? *(5/15/01 PMG)* How comprehensive an assessment can be conducted in 1 year? *(5/15/01 PMG)* This is ambitious project. Good luck. *(5/16/01 PMW)* It's an ambitious effort. Is enough time being allowed for data collection, interpretation and synthesis? *(5/9/01 PMF)*
Allow adequate time for field observations *(5/9/01 PMF)*
How will information transfer be kept current? *(5/10/01 PMFB)*
What are the plans for keeping NCWAP info current in the future? What happens 5 years from now? Is there a lead agency that can be contacted in the future for updated info? *(5/9/01 PMF)*
How will NCWAP be updated with new information? *(5/16/01 PMW)* Will the program accept new information on an on-going basis? *(5/9/01 PMF)*
You might wish to consider Washington process which built in annual retreat to review process and update methods (e.g. revise LFA model as appropriate) *(5/25/01-NMFS)*
The synthesis report will be the heart of the process for timber companies, NMFS, watershed groups, and other agencies. You may need to figure out how to do syntheses over time, e.g. a year or more. *(5/25/01 NMFS)*
What is the return interval for NCWAP assessment? *(5/15/01 PMG)*
Will NCWAP rerun the LFA model as new info becomes available? *(5/25/01 NMFS)*
Is NCWAP funded to completion? *(5/16/01 PMW)*
Will NCWAP leave any staff resources behind to continue assessment efforts after a particular watershed assessment is complete? *(5/25/01 NMFS)*
If data is limiting the time frame, missing worse case scenario – How far back is data being looked at? *(5/10/01 PMFB)*

NEED FOR ACTIONS TO IMPROVE WATERSHEDS NOW:
Lots of money has been spent, data collected, yet in 15 years there has been no improvement, things have even gotten worse. (In Sonoma County) there are existing toxic problems that get no attention from DFG nor WQCB. When are you going to <u>do</u> something? *(5/9/01 PMF)*
Watersheds can be destroyed while they are being assessed. Seven years may be too long to wait. Use the money to buy habitat instead. *(5/9/01 PMF)*
The Regional Water Quality Control Board and the Dept. of Fish and Game are not responding, not taking corrective measures, and ignoring toxic runoff like pesticides and surfactants into steelhead and Coho bearing creeks. When will you start? *(5/9/01 PMF)*
What time period are we looking at for actual watershed restoration work to begin? *(5/10/01 PMFB)*
How can I feel comfortable with this process, when the Mattole is being trashed now? *(5/9/01 PMF)*
Imagine that your house is on fire and you call the fire department and they thank you very politely and tell you they'll study the problem! This is the nut of the environmental crisis of salmon and watersheds that we face today…… While over the long-term,

NEED FOR ACTIONS TO IMPROVE WATERSHEDS NOW:
an efficacious monitoring program is the keystone of a real watershed recovery program, it is not a substitute for taking action to protect watersheds and fisheries today! *[6/1/01 Tim McKay, Northcoast Environmental Center]*

WATERSHEDS CHOSEN FOR ASSESSMENT
How does this relate to the TMDL process? *(5/10/01 PMFB)*
How do you choose the rivers? What about giving priority to get out ahead of TMDL's? Will you assess all of the watersheds in the Northcoast? *(5/9/01 PMF)*
Some of the areas that have had TMDL's in place, didn't have the benefit of a team of this size and mix of disciplines – will these areas fall to the bottom now? *(5/10/01 PMFB)*
Instead of initiating the WAP on relatively unregulated and/or unstudied watersheds and relatively unstudied salmonids such as Coho, why not focus on the Klamath/Trinity River system which has lots of data on fall run Chinook and which is the focus of the K-T Restoration programs? For example, the Klamath Fisheries Restoration Long Range Plan is loaded with baseline studies conducted by DWR, USFS, and other agencies, re cumulative impacts. *(5/9/01 PMF)*
When is the Van Duzen River scheduled in the NCWAP? *(5/9/01 PMF)*
Why isn't the Navarro on the list – has lots of agricultural development that has an impact *(5/10/01 PMFB)*
When will NCWAP get to Trinity County watersheds? *(5/16/01 PMW)*

COORDINATION WITH OTHER ASSESSMENTS
How does this relate to the TMDL process? *(5/10/01 PMFB)*
How will NCWAP affect/influence watershed assessments/analyses by others, e.g. timber co.'s? *(5/9/01 PMF)*
With all of the watershed planning and assessment already occurring in many watersheds, isn't the NCWAP process a bit redundant? *(5/9/01 PMF)*
Is this a lot of duplication? There are already many good studies on the shelf gathering dust. Especially, read the Klamath and the Trinity Restoration Acts. Lots of recommended actions still not acted on...still no "teeth." *(5/9/01 PMF)*
How will your current efforts draw on the Klamath Resource information already gathered and presented in the 1984 Trinity Restoration Act and the Klamath Restoration Act as well as the Klamath Restoration Long Range Plan? *(5/9/01 PMF)*
I think assimilating the data through KRIS is great, but NCWAP appears to be searching for answers we already have. *(5/9/01 PMF)*
Will the state program coordinate with county road assessment work? *(5/10/01 PMFB)*
What is the relationship to Basin Plans? *(5/2/01 EGM)*
Review Save the Redwood League/TNC conservation report *(5/2/01 EGM)*.
Please use existing data and information; there's no need to reinvent the wheel. *(5/15/01 PMG)*
NCWAP should refer to the 1976 Scott River Management Plan developed by Fish and Game. It calls for a water trust to buy

COORDINATION WITH OTHER ASSESSMENTS
water. Flow is the major issue. Why waste time with lesser issues and more data collection to tell us what we already know? *(5/15/01 PMG)*
There is a need for short courses that are responsive – when classes are held, you need to have good follow-up (pertains to UCCE programs on TMDL process) *(5/10/01 PMFB)*

AGENCY RELATIONSHIPS
What is the coordination with other federal agencies? *(5/9/01 PMF) (5/10/01 PMFB) (5/16/01 PMW)*
What is the level of interaction with NMFS? How will data be coordinated? *(5/10/01 PMFB)* (5/2/01 –EGM)
How is the California Biodiversity Council involved? *(5/16/01 PMW)*
How will NCWAP affect HCP's in process? How will the assessment influence their outcomes? These are much more specific *(5/9/01 PMF) (5/10/01 PMFB)*
Interagency cooperation sounds great. Reality is that CDF is the lead agency. It continues to approve THP's in 303d sediment impaired watersheds. *(5/9/01 PMF)*
Can we expect a higher degree of concern and cooperation from CDF in the future? *(5/9/01 PMF)*
There is no agriculture person on the NCWAP team. There should be someone with an understanding of agriculture practices, grazing. A consultant, UC Coop. Extension. *(5/15/01 PMG)*
Are uniform protocols being developed that cut across department lines? Important to coordinate monitoring and assessment? *(5/10/01 PMFB)*
How will Forest Service data be incorporated into NCWAP? Who will be adapting to who's protocols, standards?
What is the time frame for NCWAP products vis a vis TMDL decisions? Hasn't NCWAP already missed the boat for Albion and Big River TMDL efforts? *(5/16/01 PMW)*
Keep in mind that the N. Fork Eel River watershed is in two Bureau of Indian Affairs agencies. Has there been local contact yet? *(5/16/01 PMW)*
What is the role of NCWAP vs. DFG basin planners and how are these coordinated? (*5/2/01 EGM)*
What is the role of water quality analysis in NCWAP? There seems to be a minimal role for RWQCB. (*5/2/01 –EGM)*
Questions about DFG monitoring protocols project. (*5/2/01 EGM)*
Are you involving schools in the process – monitoring, data collection, AND defining management prescriptions? *(5/9/01 PMF)*

WATERSHED GROUP RELATIONSHIPS
Different watersheds have varying degrees of organized groups – ranging from none to fairly sophisticated. How is this process going to deal with building capacity of landowners/other stakeholders within the tributary and sub-basins watersheds? *(5/9/01 PMF)*

WATERSHED GROUP RELATIONSHIPS
How should people who are currently working in watersheds proceed? Should we wait? Should we check in with your team? – *(5/10/01 PMFB)*
The Scott River Watershed Council needs a local contact with NCWAP and consistent information to and from the agencies. *(5/15/01 PMG)*
NCWAP should take a look at the Scott planning steps. *(5/15/01 PMG)*
Top down direction scares people. Please don't scare away our cooperators and limit our success. *(5/15/01 PMG)*
There is a possibility for working cooperatively with the Humboldt Watershed Council volunteer lab (*5/2/01 –EGM)*
NCWAP should not become too closely associated with the Watershed Council which may not be inclusive of all people or interests *(5/15/01 PMG).*
In those watersheds where there is an ample supply of residents who are willing to meet and ACT together, the notion of watershed governance may hold some water. …Watershed groups should be a very useful tool for helping everyone understand where each other is coming from, what the problems are and what tools and programs are available to help solve those problems.... but if watershed groups become vehicles for delay, then they become part of the problem. … I suggest that the term "watershed governance" be demoted to watershed groups, and that the powers that be not confuse the meetings of watershed groups with either action or necessarily compliance with applicable laws. *[6/1/01 Tim McKay, Northcoast Environmental Center]*

ROLE OF NCWAP ON PRIVATE LANDS
Landowners are very concerned with the "stakeholder" term. Landowners need to have a higher level of input than those who don't own the land. [If the so-called "stakeholders" want to impact the environment they should personally purchase land so they can implement their own management practices.] *(5/9/01 PMF)*
Landowners feel the need for protection for their privacy and management choices. *(5/9/01 PMF)*
Are landowners cooperating with data collection? *(5/10/01 PMFB)*
Landowners feel if an error in data collection occurs then a disaster could result that will be impossible to correct for 7 years or more. Landowners are afraid to let people on their land to collect data. *(5/9/01 PMF)*
Will you collect field data on private land? If so, who and how will you collect the data? *(5/15/01 PMG) (5/9/01 PMF)*
I don't believe you will get any property to do your fly-by-night assessments. How can you ground truth your data when access is limited or no access is allowed at all? *(5/15/01 PMG)*
There is fear of regulation. Can data be aggregated by reach or watershed to maintain landowner anonymity? *(5/15/01 PMG)*
Will you import information from more detailed analysis by landowners, e.g. for THP cumulative watershed effects? What will you tell landowners about how their data will be used? *(5/25/01 NMFS)*
Keep in mind the limited ability of small landowners to conduct expensive monitoring and other data collection. *(5/15/01 PMG)*
How can landowners get credit for improvements that they make? *(5/9/01 PMF)*

DATA ACCURACY AND DATA STORAGE
What is the process when ground truthing determines that remote sensing is inaccurate or the prediction model is bad? *(5/9/01 PMF)*
What leeway exists for CDMG to amend their data gathering and analysis in response to peer review and professional judgment, vis a via statutorily determined procedures? *(5/9/01 PMF)*
How rigorously will you ground-truth the LANDSAT data? *(5/15/01 PMG)*
Will there be review by local, informed people of the accuracy of the maps - roads, etc.? *(5/15/01 PMG)*
How unimpeachable will NCWAP results be, given it is only a 1 year assessment? *(5/15/01 PMG)*
What are the Quality Assurance and Quality Control procedures for NCWAP outputs? *(5/15/01 PMG)*
RWQCB was quite critical about the resolution of data presented in the Freshwater WA; how does NCWAP intend to develop data that is of sufficient spatial resolution to make any conclusions regarding watershed condition in the NCWAP process? *(5/9/01 PMF)*
Do you have a process set up for disagreements in data and how does a landowner petition for a correction of data? *(5/9/01 PMF)*
How will conflicting data be handled? e.g. USGS says this, someone else says that? *(5/16/01 PMW)*
Why is NCWAP the depository of data? *(5/9/01 PMF)*
Why not provide the data and technical advice to the actual managers or is it you assumption that NCWAP is the manager? *(5/9/01 PMF)*
Are proposed plans going to be part of the overall database? When will new plans be posted into the KRIS system? *(5/10/01 PMFB)*
Another observation – it's pretty clear this is a "state" level project and that local level input will be heard and then discarded unless there is a state level report confirming the local observation. The idea here is that 'state level' data is good because it has been "peer reviewed" and all other data, including local historical data is suspect. …If you don't look at the human use patterns on the watersheds, you end up assigning the watershed problems the wrong causes…. Don't let NCWAP make the same mistakes [misjudge watershed conditions due to insufficient 'local knowledge'.] *(6/1/01- Jean. Saffell)*

PUBLIC INPUT AND INFORMATION ACCESS
Why are the comments on the manual due in 2 weeks, June 1? Not enough time for such a major task. Too rushed - or give us a schedule for the next drafts and review. *(5/15/01 PMG)*
Why is there such a tight timeline for input, i.e. only 2 weeks for Weaverville folks. Why June 1? Can it be extended? *(5/9/01 PMF)*

PUBLIC INPUT AND INFORMATION ACCESS
Besides posting the PowerPoint show on the website, give out the graphics – it would be easier to take notes (can't just listen!) *(5/9/01 PMF)*
I feel the information given was somewhat truthful, but way too complicated. The people need to be told simple, truthful info, not scientific words to hide the fact that you want them to trust and rely solely on your decisions for "assessing" our watersheds. *(5/9/01 PMF)*
When can draft material be made available? *(5/10/01 PMFB)*
Please make other products of NCWAP available in black and white format for use in various plans *(5/10/01 PMFB)*
Will there be a fee for NCWAP products? *(5/15/01 PMG)*
What will be the process for feedback? *(5/15/01 PMG)*
Many landowners are elderly, of a generation that is not as proficient in computers and the Internet as others. May be intimidated by the computer-intensive NCWAP process and products. NCWAP should make sure its process and products are open and accessible to all, computer-literate and not. *(5/16/01 PMW)*
Where are the Appendices in the Manual (the hard copy which has been distributed)? *(5/16/01 PMW)*
You need to get information up on web. (*5/2/01 EGM)*
We need materials available in Mendocino; Santa Rosa is too far *(5/2/01 EGM)*
NCWAP information is needed on a planning watershed basis *(5/2/01 EGM)*
We need a site for using computers and getting hard copies; not everyone has ARCVIEW *(5/2/01 EGM)*
Can the information access site have ARC explorer? *(5/2/01 EGM)*
Make information available to the lay person (KRIS is good but layers can't be manipulated). *(5/2/01 EGM)*

II. QUESTIONS AND COMMENTS ABOUT PARAMETERS AND ANALYSIS

TOPOGRAPHY
Will your DEMs be derived from USGS 1:24000 topographic maps or will you use actual ground terrain? (USGS topographic contours are photogrammetrically derived from crown cover elevation) *(5/15/01 PMG)*
What will be the GIS basis? (Base map). *(5/15/01 PMG)*
What is the resolution of the LANDSAT imagery? 10m, 30m? *(5/15/01 PMG)*

LANDSLIDE MAPPING
Will the cause of landslides be evaluated? *(5/10/01 PMFB)* During landslide mapping will CDMG delineate between natural and management related landslides? This is important information for watershed scale, general prescriptions. *(5/9/01 PMF)* Will you be classifying the source or type of landslides? Natural or man-caused? *(5/15/01 PMG)* Are the landslides correlated to disturbance? Roads, etc.? *(5/16/01 PMW)*
The landslide feature map showed a number of slides. Will there be any information available in individual assessments relating to slide age/time of movement/active or inactive slides? *(5/9/01 PMF)*
Is the landslide data available now to RPF's and what are the requirements that these landslides be considered in the THP? *(5/10/01 PMFB)*
What is difference between new landslide maps and older products? *(5/10/01 PMFB)*
Are you using recent aerial photography for the landslides? *(5/15/01 PMG)*
Will NCWAP landslide data be compared with soil survey information? *(5/16/01 PMW)*
Will it include seismic history? *(5/9/01 PMF)*

ROAD DATA
What is the source of the road density/location data that will be generated by NCWAP? Aerial photos? 1:24,000 maps? THP data? Landowners maps? *(5/9/01 PMF)*
The road network should be more than that on the USGS quads which are 1955 conditions. *(5/15/01 PMG)*

VEGETATION
Values on the maps for crown cover & dbh – are these standardized for all basins so interbasin comparison is possible? *(5/9/01 PMF)*
How does the satellite imagery discern between tree dbh and canopy closure for different timber types? e.g. hardwood

VEGETATION
dominated vs. conifer dominated vs. mixed. *(5/9/01 PMF)*
Will harvest history maps separate out selection logging from clear cut logging? *(5/9/01 PMF)*
Will toxins be evaluated in hardwood herbicide spray areas? *(5/10/01 PMFB)* Will CDF change its practice of allowing transfer of a THP from the original owner to a new owner? (our goal – new owner = new THP) *(5/10/01 PMFB)*
What will THP history be based on? The original THP or the completion report (the "as built")? *(5/15/01 PMG)*
What is the resolution of the vegetation mapping? Is it the LANDSAT, Ralph Warbington stuff? *(5/16/01 PMW)*
What year maps will be used for vegetation mapping? *(5/2/01 –EGM)* Need to update 1994 imagery; how will current CDF/USFS effort coincide with NCWAP? (*5/2/01 EGM)*
Need to define "late seral"; concern about usefulness of WHR class (*5/2/01 EGM)*
As I recollect the maps this evening showed old growth in red. Afterward red was used to identify most likely landslide areas, heavily logged areas and parts of watersheds where fish had little chance for survival. Usually red has a connotation of danger – was red used to suggest that logging should stop where there is old growth? *(5/9/01 PMF)*
Please be up front about the affects of logging on the watersheds, how logging has a <u>big</u> part in damaging or destroying our watersheds. You mentioned El Nino and how that affected the streams and watersheds, but clear cuts or logging on steep slopes are the main problem. *(5/9/01 PMF)*

STREAMS
What will be the smallest stream order mapped? *(5/15/01 PMG).*
Not all blue line stream density coverages are equal. Please discuss quality assurance and quality control. *(5/9/01 PMF)*
How will reference streams be identified? *(5/2/01 EGM)*
What sources will be used to build temperature curves? *(5/2/01 EGM)*
Is any long-term temperature monitoring going to occur in the watersheds? A one summer monitoring program would not give a true temperature indication. *(5/9/01 PMF)*
Why is the State paying for more gages when it's <u>not</u> paying its 50% share of existing USGS gages? At least a <u>10 year</u> commitment is need to make gage data of any value. Scott River's <u>only</u> gage is threatened with closure every year because DWR can't match USGS. *(5/15/01 PMG)*
The manual doesn't discuss channel complexity; important for winter habitat *(5/2/01 EGM)*
Are the 24 habitat types used by DFG relevant to the LFA analysis? *(5/25/01 NMFS)*
How repeatable will habitat typing be? Will it be used for diagnosis or monitoring? (*5/2/01 EGM)*
Landowners will need to do habitat typing for Coho; can NCWAP use this data? Other landowners don't want to do it. (*5/2/01 EGM)*
Forester need to be trained in habitat typing *(5/2/01 EGM)*
Why has NCWAP created a stream classification with 2 classes below 2% gradient? *(5/25/01 NMFS)*

STREAMS
Each document that you provided lauds the benefits of large woody debris (LWD). I find no mention what so ever of any possibility that LWD can have negative effects. As an example, I suggest that the following verbiage is biased and if not changed will bias the outcome. DRAFT Page 19, Critical Questions. "What role does large woody debris have within the watershed in forming fish habitat and determining channel class and storing sediment?" The Critical Questions implies that sediment is stored by large woody debris, thus precluding any other conclusion. I invite the author to come to Zenia and observe the impact of LWD on a constrained channel with gradients ranging from >8 to > 20 percent. I hope that the relationship between stream flows and tree density becomes a focal point, because, I think that fish do not do so good without water. . *[6/8/01 Norman Ross Burgess]*

WATER QUALITY
What is the role of water quality analysis in NCWAP? (*5/2/01 –EGM)*
Herbicide use is a big concern in Freshwater THPs and on north coast; any chance for water quality testing for herbicides? (*5/2/01 –EGM)*
Could NCWAP look at AG Commissioner county spray records? (*5/2/01 –EGM)*
Turbidity: many folks think it is not given enough attention. Will there be an opportunity for testing or monitoring? (*5/2/01 –EGM)*
Turbidity should be considered when picking reference streams. (*5/2/01 EGM)*
Does the clear-cutting of forests impair water quality? *(5/9/01 PMF)*

WATER QUANTITY
Water quantity and flow needs to be more emphasized in the assessment process. *(5/25/01 NMFS)*
Watershed assessment must include an accounting of available surface water, ground water, water rights, and water usage by those with and without water rights: Assess surface and ground water supplies and contamination of these supplies. Determine current and future water usage. *(5/9/01 PMF)*
How will the NCWAP process affect the issuance of water rights permits by the SWRCB? In other words, how will water quality/quantity be protected? *(5/9/01 PMF)*
Are water diversions going to be included – Agricultural ponds? *(5/10/01 PMFB)*

CLIMATE
How will weather patterns be incorporated into the analysis? How are historical trends be used? *(5/10/01 PMFB)* How will weather patterns and history be incorporated into the assessment program? *(5/10/01 PMFB)*

SOCIAL FACTORS
Social drivers/parameters will be collected by NCWAP, to what extent? *(5/16/01 PMW)*
What social factors will be considered by NCWAP? *(5/16/01 PMW)*
Add "conservation" under "Human Driver" section on figure 6 *(5/2/01 –EGM)*
Communities have "sacred spots" *(5/2/01 EGM)*. Consider ways to do interviews and get oral histories, e.g. school projects, projects with elders, senior groups, ranchers, newspapers *(5/2/01 EGM)*
I would like to point out that members of the Weaverville audience expressed concern about the lack of social economic data going into the assessment. There is no program lead for this part of the assessment. And it was clear that there is no desire to create one as part of the interagency team, even though according to the presenters the topic came up in every meeting prior to the Weaverville meeting. … I would like to suggest that the Resources Agencies contact the State agencies in possession of employment and economic information. I am quite confident that there is at the state level, substantial social economic data that would be of use to NCWAP. The excuse that the data is too broad of scale, old, etc is just that – an excuse…. For example, CD-DATA has assessor parcels maps for all of the counties involved, plus detailed information on the ownerships, the types of property improvements, etc. (http://www.cd-data.com) Counties frequently have their zoning maps online at CERES. Granted, the data isn't conveniently broken out by watershed – but isn't that the task of a watershed assessment – to take data and break it down by watershed? [*6/1/01 Jean Saffell]*

FISH DATA
Need more emphasis on the intrinsic value of fish – presentations too oriented on their commodity/sport fishing value *(5/10/01 PMFB)*
How is existing Region 3 steelhead monitoring data being used? *(5/10/01 PMFB)*
The Coho in Scott Valley are "wetlands Coho" which are different than "coastal Coho". Will that variation be taken into account? *(5/15/01 PMG)*
Will you have a synthesis chapter of all the info from various programs/data as it relates to cumulative effects of watershed conditions and limiting factors for specific life stages of salmonids? *(5/9/01 PMF)*
The manual needs to clearly state the agency leads for collecting data related to fish habitat and for analyzing questions that relate to fish (i.e., fish-related questions which occur in each of the disciplinary or topical sections). (*5/25/01 NMFS)*
It would be nice if there was a GIS layer that illustrated species occurrences from the Natural Diversity Data Base. I know the NDDB is not particularly complete or exhaustive, but it would be interesting and potentially useful to see where in the watershed various species are found if any. *[5/01 Paul Mason, The Environmental Protection Information Center]*
There is no mention of refugia. This needs to be incorporated into manual to address stewardship goals. It could be part of the effort to identify reference streams. This should be added to the recommendations. LFA maps could also be used to help show these. *(5/2/01 EGM)*

FISH DATA
A critical question on refugia should be added (*5/2/01 EGM)*
Is there a linkage between electro fishing and other invasive kinds of research and the number of salmon that return to spawn, and long-term survival? As a control, keep completely out of creek and see if salmon return. *(5/9/01 PMF)*
Is there a linkage between juvenile trapping, hatchery rearing, and the number of salmonids that return to spawn, and with the salmonids long term survival? *(5/9/01 PMF)*
As a control, spend all funds on buying riparian borders, etc., keep out of creek instead of collecting fish data and see if salmon come back. *(5/9/01 PMF)*
To manage and improve the native fish population, why isn't the population of seals considered? *(5/9/01 PMF)*

LIMITING FACTORS ANALYSIS - EMDS
The decision support tool is central – How will the model be validated? *(5/10/01 PMFB)* How will they verify these "linkages" (hypotheses)? Will they be statistically defensible? [Presume this refers to EMDS model] *(5/15/01 PMG)* How much on-the-ground assessment will there be of the limiting factors? *(5/15/01 PMG)*
It's very important to fully disclose the LFA model's limitations and its spatial and temporal constraints. . *(5/25/01 – NMFS)*
It may be difficult for NMFS to fully comment without seeing specifics of the model. We might want to have another review of the LFA after it's fleshed out. *(5/25/01 NMFS)*
How can NCWAP determine the limiting factors on salmonid life history without addressing the marine stages, where salmonids spend at least half their lives? *(5/10/01 PMFB)* How will ocean conditions be incorporated into LFA? *(5/10/01 PMFB)*
How will pool depth, an important aspect of salmonid habitat, be incorporated into the EMDS model? *(5/10/01 PMFB)*
When doing limiting factors and describing capacity of different watersheds to support salmon, we should distinguish natural from man made causes *(5/15/01 PMG).*
Will natural variability be taken into account in EMDS? *(5/15/01 PMG)* Will NCWAP use the same EMDS model for the entire region? *(5/25/01-NMFS)*
EMDS is too simplistic an approach - please do not spend time on this tool for us. Very large gray area with what fish tolerate, not just absolutes or true/false. Local genetics (why we have ESUs) make fish tolerant of warmer temperatures and more natural sand background levels. *(5/15/01 PMG)*
I am concerned at the short duration you spend reviewing the watershed and limiting factors. Your limiting [factor] work obviously will not be as complete as ours and should not be regarded "the opinion." NCWAP scares me. *(5/15/01 PMG)*
How will the LFA incorporate biological compensation? *(5/9/01 PMF)*
What has been the largest contribution to the decline in fish populations? *(5/9/01 PMF)*
How will the assessment link the potential erosion data (from CDMG) with the LFA (from DFG)? *(5/9/01 PMF)*
How will the assessment link vegetation data (from CDF) with the LFA? *(5/9/01 PMF)*

LIMITING FACTORS ANALYSIS - EMDS
People always manage to minimum standards. How will the thresholds be determined so that this doesn't continue to happen? *(5/10/01 PMFB)*
How will failures be included? What will we learn from this? *(5/10/01 PMFB)*
Will there be a chance to review the LFA model after it's built but before it's used? *(5/2/01 EGM)*
You need to make and promote EMDS so that local groups can take them and run them in future, e.g. RCD's, UCCE. *(5/25/01 NMFS)*

CUMULATIVE EFFECTS
Concern about CDF being responsible for cumulative effects analysis (*5/2/01 EGM)*
What is the relationship to the Dunne report? (*5/2/01 EGM)*
How will CDF's provide direction for cumulative effects analysis? *(5/25/01 NMFS)*

III. QUESTIONS AND COMMENTS ABOUT SPECIFIC WATERSHEDS

MATTOLE
Why is DFG using helicopters for owl surveys in the Mattole? *(5/9/01 PMF)*
Isn't it contradictory that DFG is arresting Mattole forest defenders? *(5/9/01 PMF)* If Fish and Game is trying to help the watershed, then why are Fish and Game wardens arresting the people that are trying to help the Mattole watershed? *(5/9/01 PMF)* Why are Fish & Game wardens chasing forest defenders, Coho salmon protectors, even after the monitoring and surveys have been completed? *(5/9/01 PMF)* Why is Fish & game working with Pacific Lumber to keep forest defenders from protecting species? *(5/9/01 PMF)* Why should we fund Fish & Game when they protect the poachers of Ancient Old Growth Douglas Fir? *(5/9/01 PMF)*
Can you do anything about the Mattole situation? *(5/9/01 PMF)* Tell Fish and Game to protect the wildlife not chase down activists in the forests who are there to protect the wildlife! Ironic isn't it? *(5/9/01 PMF)*
Currently taxpayer resources are being utilized in the employment of Fish & Game enforcement agents in the Mattole forest, a crucial headwaters of the Mattole River. These agents are working to apprehend and arrest forest defenders in the region. We local community members are very concerned about this situation and would like to know: Why is Fish & Game working against non-violent forest defenders who are protecting these watershed areas? Who do we approach specifically to address this shocking injustice? Why is Fish and Game undermining their job by arresting Mattole forest defenders? *(5/9/01 PMF)*

REDWOOD CREEK
Redwood Creek is a good example of a good reference watershed as a laboratory – its been literally studied almost to death. ….The U.S. Government spent more than a billion dollars to purchase about 60,000 acres in the watershed. Upstream from the park, four land owners hold some 70% of the watershed, then there's about 360 people in Orick, near the mouth, and other scattered tracts of smaller owners…. How is watershed governance supposed to work in Redwood Creek…everyone in the United States is a stakeholder, or is it that anyone who owns property in Redwood Creek can have a meeting and agree that there's no consensus that they need to comply with the ESA or the Clean Water Act? *[6/1/01 Tim McKay, Northcoast Environmental Center]*